



PANZER III **VS** SOMUA S 35

Belgium 1940



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CONTENTS

Introduction	4
Chronology	8
Design and Development	10
Technical Specifications	22
The Combatants	27
The Strategic Situation	46
Combat	50
Statistics and Analysis	71
Conclusion	76
Further Reading	78
Index	80

INTRODUCTION

This book examines the confrontation between two of the best battle tanks of the 1940 campaign, the French Somua S 35 and the German PzKpfw III. The duel forming the centrepiece of this book is history's first great tank-versus-tank battle, the fighting at Hannut-Merdorp in Belgium on 12–13 May 1940.

It is difficult today to recall the perspective of European tank designers of the late 1930s. Tank-versus-tank combat in World War II was so commonplace that it leads to the presumption that the tanks developed before 1939 had this type of combat as a primary technical requirement. In fact, this was not the case, especially with respect to the tanks built at the start of the arms race in the mid-1930s. While tanks were used in large numbers in the final year of fighting during World War I, there was only one known instance of tank-versus-tank combat. The primary function of tanks since World War I was to provide fire support to the infantry in overcoming enemy defensive positions, especially enemy machine-gun nests and trenches. As a result, tanks were armed with weapons appropriate to this mission, usually machine guns or low-velocity guns firing HE (high-explosive) projectiles. Tank production in Europe from 1920 to 1933 was miniscule. Germany was banned from tank manufacture by the Versailles Treaty and France had an enormous fleet of Renault FT light tanks left over from World War I.

The Nazi rise to power in Germany in 1933 marked the start of a new European arms race. Germany had not manufactured large numbers of tanks in World War I, but German military doctrine after the war began to focus on the value of mechanized units for offensive military operations. Germany began the mass production of tanks in 1934. French military doctrine of the early 1930s had a more defensive orientation than Germany's, but there was a widespread view that tanks were an essential element on the modern battlefield. France also began its



own tank programmes, but mass production did not begin until 1936, two years after Germany.

In designing the new generation of tanks, the French and German designers had to establish a balance between the ‘holy trinity’ of tank design: armour, firepower and mobility. Since German tactical doctrine viewed the essential role of tanks as offensive weapons in mobile operations, German tank designs favoured mobility over armour. Armour was sufficient to resist the most likely defensive weapon, a machine gun firing armour-piercing rounds. The next level in armour, the ability to withstand infantry anti-tank guns, would require so much more armour that mobility would be compromised. The French took a different approach. The most important programme of the mid-1930s was the new infantry-tank effort, aimed at replacing the enormous fleet of obsolete Renault FT tanks. By the time of its conception in 1933–34, the Heer had already begun to adopt the Rheinmetall 3.7cm anti-tank gun. Since the primary requirement of the light tank was to

This Somua S 35, displayed for many years at Aberdeen Proving Ground, served in the 29e RD, 2e DLM. It was turned over by the Germans to the Italian Army as war booty and was captured at an Italian test centre near Rome by the US Army in 1944. In the background is one of APG’s PzKpfw IV tanks. [Author]



A PzKpfw III Ausf F seen on the training grounds of the Panzertruppen-Schule in Wünsdorf on 3 June 1941. (NARA)

accompany French infantry in overcoming enemy defensive positions, the presumption was that the new design would have to have armour sufficient to shield it from the threat of the 3.7cm gun. As a result, French tanks of this period had thicker armour, but lower mobility than their German counterparts.

Armament on these new tanks was shaped by economic considerations, tactical doctrine and production capacity. Both the German and French armies wanted to manufacture these new tanks in very large numbers. The Heer wanted enough tanks to create several Panzer divisions. The French Army wanted enough tanks to provide each infantry division with a tank battalion. Neither country had manufactured tanks for more than a decade, and it would take time to create an efficient tank industry. Tanks were expensive weapons, and tank costs had to be balanced against other aspects of army modernization including new infantry and artillery weapons and the motorization of the infantry and cavalry. As a result, both armies sought tanks that were inexpensive and easy to manufacture in large quantities. Inexpensive inevitably meant small tanks, since larger tanks weighed more and required more powerful engines.

The small size of the new tanks naturally restricted their armament. Neither army regarded tank-versus-tank fighting as a primary tactical requirement. In the German case, a pair of 7.92mm machine guns offered enough firepower to deal with enemy infantry, and the availability of special anti-armour projectiles offered some limited capability against contemporary enemy tanks. In the French case, the Renault FT had been armed with a short 37mm gun or a heavy machine gun, and for the new infantry tank, the 37mm gun with a co-axial light machine gun seemed a perfectly adequate weapon, given the size and cost constraints. This 37mm gun had a very short barrel and a small propellant charge, and so its anti-armour capability was quite weak. As a result of these factors, the two most important tanks during the first phase of the 1930s arms race were the French Renault R 35 and the German PzKpfw I, neither of which was well suited to tank-versus-tank fighting.

The PzKpfw I entered production in 1934 and continued through to 1937. In later years, it was misleadingly characterized as a mere 'training tank'. Nothing could be further from the truth. By European standards of the mid-1930s, it was a very advanced design and far superior to the contemporary tankettes such as the Italian L3, Polish TK or Soviet T-27. A 1936 report succinctly defined German tank doctrine of the time: 'The classical role for tanks is to overcome machine guns that have dominated the battlefield while at the same time crossing terrain obstructions. Therefore, the three primary features of the tank are protection against machine gun fire, armament of machine guns and cannon to engage targets, and high cross-country mobility with the capability to cross trenches and barbed wire.'

The sudden surge in European tank production in 1934–36 increased annual totals in Western Europe from a few dozen to a few thousand. As a result, the probability of tank-versus-tank fighting dramatically increased. The Heer recognized this problem even before production of the PzKpfw I had begun. While some of the more radical tank advocates recommended waiting for the arrival of a next-generation medium tank, the senior leadership of the Heer wanted large numbers of tanks as soon as possible to begin creating the new Panzer divisions. The best that could be done in the short term was to arm a light tank with a better anti-tank weapon. This emerged as the PzKpfw II with a 2cm cannon. Production of pre-series vehicles began in May 1936, around the same time as the start of Renault R 35 production.

With the arms race well under way, both Germany and France began to consider the configuration of the next generation of tanks. With adequate numbers of light tanks on hand, both armies recognized the need for tanks better suited to fight enemy tanks. Both countries had been considering medium and heavy tanks since the 1920s and had already built experimental designs. In France, this effort culminated in the Char B1 battle tank for the infantry and the Somua S 35 for the cavalry. The Heer adopted a parallel programme, with the PzKpfw III selected as the principal battle tank, supplemented by the larger PzKpfw IV to provide heavy HE fire support. An earlier book in the *Duel* series covered the two heavier designs, while this book examines the evolution and combat record of the two medium designs.¹

1 Steven J. Zaloga, *Panzer IV vs Char B1 bis: France 1940*, Osprey Duel 33: 2011.

CHRONOLOGY

1931

December

French Army begins its *automitrailleuse de combat* (AMC) programme for a cavalry tank.

1933

September

Renault delivers a prototype, designated YR, for the AMC requirement.

1934

January

German general staff approves requirement for the future PzKpfw III.

October

Somua offers its design for the revised AMC requirement.

1935

April

Somua delivers first AC 3 pilot chassis for trials.

August

Daimler-Benz delivers first PzKpfw III chassis for trials.

October

First AMC 34 delivered to French Army.

1936

July

First batch of Somua S 35 tanks delivered to French Army.

1937

March

First PzKpfw III Ausf A accepted.



The 2e Cuirassiers did not receive its Somua S 35 tanks until February 1940, limiting the amount of training possible before the start of the campaign. (Patton Museum)



One of the important features on German medium tanks was the use of a commander's cupola that offered all-around vision from a series of protected view slits. In addition, these cupolas had an opening hatch that permitted the commander to gain better situational awareness by keeping his head up outside the tank. [Author]

1938

November
December

PzRgt 35 formed in Bamberg.
First PzKpfw III Ausf E accepted.

1939

March

PzKpfw III takes part in occupation of Czech provinces.

August

German production transitions from PzKpfw III Ausf E to Ausf F.

September

PzKpfw III sees its combat debut during invasion of Poland.

1940

January

The 2e Cuirassiers is formed as part of the new 3e DLM.

10 May

Germany invades Netherlands and Belgium.

11 May

Forward detachments of the 3e DLM clash with 4. PzDiv near Maastricht.

12 May

Heavy fighting between the 3e DLM and 4. PzDiv around Hannut.

13 May

Large tank battle erupts around Hannut–Merdorp between the 3e DLM and 3. and 4. PzDiv.

14 May

The 3e DLM withdraws behind the Perwez anti-tank barrier; 4. PzDiv pursues.

15 May

Major battle near Gembloux between the IVe Corps d'Armée and XVI. Armeekorps (mot.).

DESIGN AND DEVELOPMENT

PANZERKAMPFWAGEN III

ORIGINS

The Heer's requirements for the next generation of tanks were laid out by the Inspektion der Kraftfahrtruppen (Inspectorate for Motor Troops), headed by Generalleutnant Oswald Lutz. This office was part of the Heereswaffenamt (Army Ordnance Division). Lutz had led German AFV development since the 1920s and had been closely involved in clandestine efforts to study future tank design. One of the methods used to avoid the Versailles Treaty restrictions was to test new designs outside Germany, most importantly at the German–Soviet test centre near Kazan. While none of the tanks tested at Kazan proved suitable for mass production, they helped clarify the technical and tactical requirements for future tanks. In 1933, Lutz outlined the requirements for a next generation of tanks beyond the PzKpfw I. These were given cover-names for secrecy – the *Zugführerwagen* (ZW, or 'platoon commander's vehicle') and the *Bataillonsführerwagen* (BW, or 'battalion commander's vehicle'). They would eventually emerge as the PzKpfw III and PzKpfw IV. A later report summarized the distinction between the two types:

The PzKpfw III is the assault tank [*Sturmwagen*], an 'armoured infantryman' [*gepanzerte Infanterist*] which wins the mobile battle with the annihilating power of its machine



guns. The 3.7cm gun has been added to deal with the threat of an armoured opponent. The PzKpfw IV is the over-watch tank [*Überwachungswagen*] following immediately behind the PzKpfw III and supporting it in overcoming the enemy. The ratio of PzKpfw III to PzKpfw IV is about the same as the infantry's ratio of light machine guns to heavy machine guns.

A light-tank company of I./PzRgt 36 in the fields outside Gembloux, Belgium, in May 1940. By this time, the PzKpfw I was obsolete and the regiment had to be careful using it if French tanks were present. (NARA)

It was especially noteworthy that the requirements emphasized the role of the machine guns in the *Zugsführerwagen* requirement.

Lutz received approval for the new tank from the General Staff in January 1934 and the Heereswaffenamt outlined the technical requirements to the industry in February 1934. Competitive development contracts were awarded to Daimler-Benz and Maschinenfabrik Augsburg Nürnberg AG (MAN) for the chassis and powertrain, and to Rheinmetall and Krupp for the turret and armament. After initial evaluations, the Heereswaffenamt selected the Daimler-Benz chassis and the Krupp turret. Krupp was also designing the turret for the *Bataillonsführerwagen*, so they were very similar in appearance and layout.

Krupp completed the first two turrets in August 1934 and Daimler-Benz delivered the initial chassis in August 1935. The hybrid armament consisted of a 3.7cm KwK (*Kampfwagenkanone*, or 'tank gun') to the left and a separate pair of 7.92mm MG 34 machine guns to the right in independent mounts. The Krupp turret had a crew of three: commander, gunner and loader. The Krupp layout was a very advanced concept

The early versions of the PzKpfw III were plagued with suspension problems. This is one of the original PzKpfw III Ausf A already relegated to training duties at the Panzertruppen-Schule in Wünsdorf in January 1940. [NARA]



at the time, as most previous tanks had one- or two-man crews. The three-man crew configuration was based on the earlier tank experiments at Kazan, which emphasized the need to free the tank commander from any chores servicing the gun to allow him to concentrate on his principal role of directing the tank.

By 1936, the Heer was beginning to have second thoughts about the wisdom of its lightly armoured, weakly armed tanks. There were signs that France and the Soviet Union were adopting more powerful anti-tank guns and tanks with heavier armour. Early in 1936, the Generalstabschef des Heeres (Army chief of staff), Generaloberst Ludwig von Beck, asked the Heereswaffenamt why they were still purchasing the light PzKpfw I and PzKpfw II instead of the much superior PzKpfw III. The Heereswaffenamt answered that the PzKpfw III was not yet mature enough for mass production and probably wouldn't be ready for mass production until the autumn of 1938. They rationalized this by stating the units equipped only with PzKpfw I and PzKpfw II 'without question ... have a very significant combat value'. However, in March 1936, the Heereswaffenamt released a study on tank development that acknowledged that 'in the future, lightly armoured Panzers will be pinned down by heavy weapons' fire just as in the last war the infantry and cavalry were forced to ground and stymied by machine guns. Among the known enemy anti-tank weapons, the Waffenamt views the French 25mm Hotchkiss gun as the most important and dangerous at this time.'

Production of a pre-series batch of ten PzKpfw III Ausf A took place in early 1937. This version was short-lived as the coil-spring suspension proved unsatisfactory. A second pre-series batch of 15 PzKpfw III Ausf B followed, which substituted a leaf-spring suspension with smaller road wheels. A third pre-series batch of 15 PzKpfw III Ausf C modified the leaf-spring suspension and introduced other changes, including the use of the better commander's cupola from the PzKpfw IV tank as well as changes in the powertrain. The final version of the development series was a batch of

PzKpfw III Ausf F SPECIFICATIONS

HAUPTMANN ERNST FREIHERR VON JUNGENFELD, II./PzRgt 35, 4. PzDiv

Crew: 5

Length: 5.38m

Width: 2.91m

Height: 2.5m

Combat weight: 19,500kg

Ground pressure: 900g/cm²

Main gun: 3.7cm KwK

Ammunition: 125

Machine guns: 3 × 7.92mm MG 34

Engine: Maybach HL 120 TRM, 265hp (197.6kW)

Fuel capacity: 310 litres

Range: 165km

Maximum road speed: 40km/h

Armour: 30mm front; 30mm side; 10mm top



5.38m



2.5m



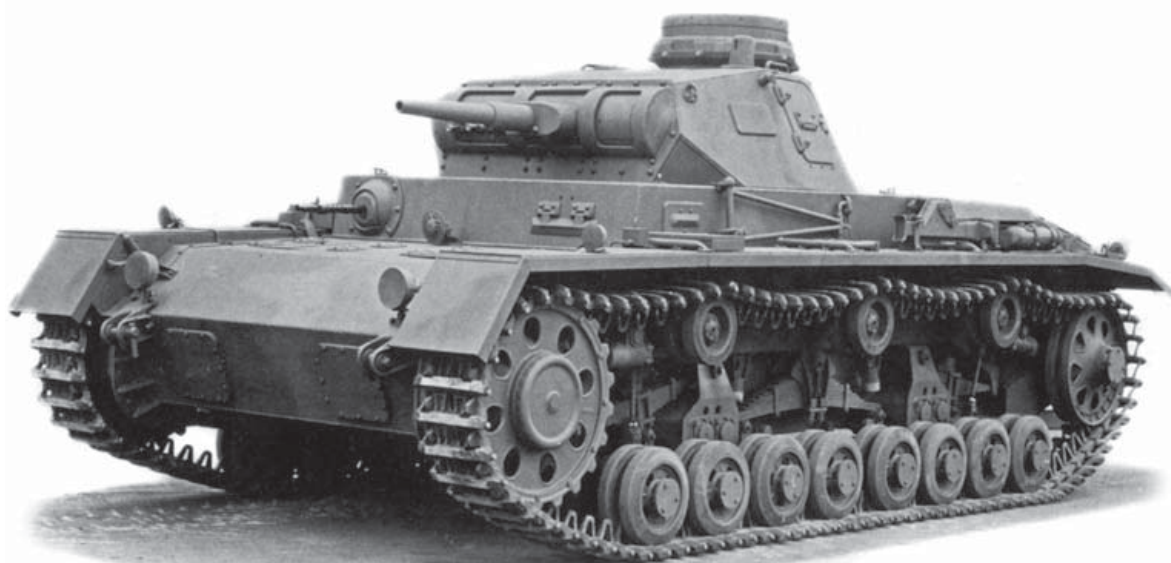
2.91m

30 PzKpfw III Ausf D that used a new transmission as well as a substantially re-designed engine cooling system.

The frustrating delays imposed by Daimler-Benz's unsatisfactory suspension led to a complete re-design of the chassis in 1937–38 under the direction of Heinrich Kniepkamp, head of the Heereswaffenamt's Waffenprüfwesen 6 (Weapons Testing Office). The most apparent change was the substitution of a torsion-bar suspension, a first for German tank engineering. Another critical change was the increase in the frontal armour to 30mm to deal with the evolving anti-tank gun threat.

The need for better armour was made abundantly clear in 1937 by the combat experiences of the Spanish Civil War. The Heer dispatched a small 'volunteer' tank force to serve as advisors for Franco's Nationalist Army, and attachés reported on the conduct of the fighting. The Republican forces were receiving large numbers of the Soviet T-26 light tank, armed with an excellent dual-purpose 45mm gun. In addition, the Republican infantry were also equipped with the towed anti-tank gun version of this weapon. The Soviet gun was a modified version of the Rheinmetall 3.7cm anti-tank gun built under license in the Soviet Union, but with an enlarged bore to permit the use of a more effective HE round. In the occasional tank-versus-tank battles in Spain, the Republican T-26 tanks dominated the Nationalist tank units equipped with the PzKpfw I light tanks and Italian L3 tankettes, since the PzKpfw I's and L3's machine guns were nearly useless against the T-26, while its 45mm gun could defeat them at normal combat range. In addition, tanks protected with only 15mm of frontal armour could not press home attacks against infantry defended by the current generation of 37–45mm anti-tank guns. The experiences of the Spanish Civil War made it clear that the lightly armed, machine-gun-equipped tanks of the early 1930s were obsolete and that a new generation of gun-armed tanks with better armour was essential. The need to shift tank production quickly from light tanks to the PzKpfw III was abundantly clear by 1938.

The next series of pre-production PzKpfw III shifted to a more conventional leaf-spring suspension, as evident on this PzKpfw III Ausf D. [Patton Museum]





The first military action of the PzKpfw III took place in March 1939, when a handful of these new tanks were used in the occupation of the remaining Czech provinces. A PzKpfw III Ausf E can be seen to the left of three PzKpfw II of PzRgt 3 in Brno on 22 March 1939. (NARA)

PzKpfw III Ausf E

The Heereswaffenamt attempted to bring forward the commencement of serial production of the new PzKpfw III Ausf E to May 1938. This proved to be impossible due to delays in manufacture of many of the new sub-components of the tank, especially the powertrain. The most serious bottleneck was the Maybach Variorex transmission manufactured by Zahnradfabrik in Friedrichshaven, which was still far from mature. As a result, the first PzKpfw III Ausf E was not accepted until December 1938. Even once production began, it was painfully slow due to lingering problems with the transmission. By June 1939, only 19 complete PzKpfw III Ausf E had been accepted by the Heer, and only 50 at the start of the war in September 1939.

A small number of PzKpfw III Ausf E were delivered to PzRgt 3, which used them in the uncontested occupation of the Czech provinces of Bohemia–Moravia in March 1939. At the start of the war in September 1939, there were 98 PzKpfw III in service, consisting mainly of the pre-series types from Ausf A through to Ausf D, with a handful of the new Ausf E. A total of 87 PzKpfw III of all types saw combat use in the invasion of Poland in September 1939. These were deployed primarily with 1. PzDiv (26 tanks) and 3. PzDiv (43 tanks); most divisions had only a token number or none at all. Combat losses were relatively high, with total losses of 26 PzKpfw III (30 per cent) and 60 more tanks requiring significant reconstruction. There was very little tank-versus-tank fighting in Poland due to the small size of the Polish tank force, but the Polish Army had a modern and potent arsenal of infantry anti-tank weapons. These included the 7.9mm wz. 35 anti-tank rifle with an advanced tungsten-core projectile, and the licence-built Bofors 37mm anti-tank gun.

PzKpfw III Ausf F

Production of the PzKpfw III Ausf E ended in October 1939 after only 96 had been manufactured, switching to the modestly improved Ausf F. Teething problems with



The early *Panzerbefehlswagen* command tanks carried no main gun since the turret was filled with radio equipment. This view shows a *Panzerbefehlswagen* with the *Kurbelmast* fully extended during the campaign on the Eastern Front on 10 August 1942. (MHI)

the Variorex transmission continued to plague units equipped with the new tanks, requiring frequent repairs. The PzKpfw III Ausf F was essentially the same as the Ausf E except for the switch from the Maybach HL 120 TR engine to the HL 120 TRM with improved magnetos. One visible change introduced in late 1939 was the addition of a pair of cooling holes through the glacis plate over the steering brakes. These were covered with small armoured cowls, but this feature was not universal and some plants were continuing to produce the Ausf F into the spring of 1940 without the cooling feature. One of the major successes in 1939 was to extend PzKpfw III production to other plants in order to accelerate production. By 1940, five more assembly plants were involved in the PzKpfw III programme besides Daimler-Benz.

The Heereswaffenamt had been authorized to begin work on a better-armed version of the PzKpfw III in January 1938, based on the growing recognition that the 3.7cm gun was not adequate to deal with newer British and French tanks with thicker armour. The use of a new 5cm gun had been the source of bureaucratic controversy since 1936, with the 3.7cm gun retained on the PzKpfw III to ensure standardization with the infantry's 3.7cm anti-tank gun. The proposed 5cm tank gun would require a new family of ammunition, and some departments in the Heer were unwilling to support such a costly and

disruptive innovation. Resistance was overcome due to the growing recognition of the threat posed by thicker enemy tank armour. Work on both a new 5cm tank gun and a new 5cm anti-tank gun for the infantry was initiated in 1938. Production of the PzKpfw III Ausf G with the 5cm gun was planned to begin in June 1940, but the first tanks were not accepted until July and were not in service use until August 1940. As a result, none took part in the French campaign.

In parallel to the development of the normal PzKpfw III tanks, the Heereswaffenamt also developed a series of radio-equipped command tanks. Two types of *Panzerbefehlswagen* were in service in 1940, a small command tank (*kleiner Panzerbefehlswagen*) on the PzKpfw I chassis and a large command tank (*grosser Panzerbefehlswagen*) on the PzKpfw III chassis. The intention was to provide the large command tanks on a scale of two to the Panzer battalion HQ company, two to the Panzer regiment HQ company, three to the Panzer brigade HQ, and seven at Panzer division HQ for a grand total of 22 per division. The *Panzerbefehlswagen* on the PzKpfw III chassis had different internal radio configurations depending on their use

at battalion, regiment or brigade level, and so received their own specialized vehicle designations – SdKfz 266, 267 and 268. Although superficially resembling the normal gun tank, the large command tank had a fixed turret with a dummy gun since the radio equipment took up so much internal volume.

PzKpfw III production up to the French campaign											
	to Sep 39	Sep 39	Oct 39	Nov 39	Dec 39	Jan 40	Feb 40	Mar 40	Apr 40	May 40	Jun 40
Accepted	105	40	40	35	42	42	49	51	51	65	58
Delivered	105	31	49	28	34	46	49	55	32	67	73
Cumulative	105	136	185	213	247	293	342	397	429	496	569
Total losses		26	0	0	0	0	0	0	6	110	25
In service		98	127	174	199	219	271	288	329	381	325

SOMUA S 35

ORIGINS

The elevation of Général Maxime Weygand to head the French general staff in January 1930 led to an ambitious plan to mechanize the cavalry. The Weygand reforms envisaged three types of cavalry armoured vehicles, all dubbed armoured cars (*automitrailleuse*) to avoid stepping on the toes of the infantry, who were still nominally in charge of tanks (*chars*). Two of these were light reconnaissance vehicles, the AMD armoured car and AMR light tank. The AMC was the primary fighting vehicle of the cavalry, sufficiently armed to engage enemy tanks.

The cavalry's AMC programme began in December 1931, and Renault offered its YR tank, Somua its AC half-track and Fromaget/Batignolles its wheeled tank design. The cavalry selected the Renault YR and testing began in September 1933. Due to the growing crisis with Germany and the need to rapidly equip the first of the new mechanized cavalry divisions, Renault received a production contract for a dozen tanks under the Army designation AMC 34 in March 1934. They were delivered starting in October 1935. It was quickly recognized that their 20mm armour was insufficient to resist the new German 3.7cm anti-tank gun, so they were exiled to cavalry units in North Africa.

Due to the threat of the German 3.7cm anti-tank gun, in 1934 the cavalry changed the AMC specifications to upgrade the armour to 40mm and to increase the firepower to a 47mm gun. At first, the Somua management showed no interest in competing again for the AMC requirement. However, French Army officials were interested in expanding the industrial base because Renault was becoming swamped with too many armoured vehicle programmes, including the AMR cavalry scout tank, UE armoured infantry tractor, R 35 infantry light tank, and Char B battle tank. The French cavalry attempted to entice Somua with a promise that the winning competitor would receive



This Hotchkiss H 39 of the 3e Escadron, 2e Cuirassiers came to grief in an irrigation ditch during the fighting in Thisnes on 12 May 1940. There is a single penetration visible on the turret side above the visor. [Patton Museum]

submitted a bid for the AMC requirement on 12 October 1934, offering its new AC 3 design, while Renault offered its enlarged ACG 1. The Somua suspension and transmission were based on Brillié's work on the LT-35 while the engine was a 180hp (134.23kW) V-8 design purchased from the Société Javier Sabin. Somua was only responsible for the chassis development and the new turret and armament were to be designed by the state Atelier de construction de Puteaux (APX). One of the novelties of the design was the extensive use of large armour castings for the hull, a technology in favour with the French Army at the time due to the hopes that it would facilitate mass production. The Army awarded Somua a development contract on 23 February 1935, which included a production agreement for the first 50 tanks. A turret-less prototype was delivered on 11 April 1935 to the French Army's main proving ground in Versailles and the initial trials took place between 4 July and 2 August 1935. The pilot tank was overweight, at 17,000kg versus the goal of 13,000kg, and the average road speed was too low. While the Army accepted the weight increase, improvements to the powertrain were essential. The pilot was sent back to the plant at Saint-Ouen-sur-Seine for further work, and tests continued intermittently on three pilot tanks through March 1937 as adjustments and improvements were made.

The AMC programme was pushed off course in the summer of 1935 due to political pressures. The new defence minister, Jean Fabry, and chief of the general staff, Général Maurice Gamelin, visited the Versailles proving ground and saw a demonstration of one of the Hotchkiss H 35 light tanks alongside the early Somua AC 3 prototype. The Hotchkiss design had lost the infantry light tank competition to the Renault R 35, but the firm was still trying to win contracts for its production. The Somua tank at this stage was very unimpressive, having a large weight in place of a turret. It had only begun trials and its automotive performance was uninspiring. In contrast, the small Hotchkiss paraded through the course with little difficulty. Fabry became a strong proponent of the Hotchkiss, and insisted to Gamelin that it proceed to production in place of the Somua. Fabry was unaware of the technical characteristics of the Somua, particularly its thicker armour, better gun and three-man crew.

contracts for 600 tanks, a very substantial order. The plan was to equip all three of the new mechanized cavalry divisions with the new AMC. On 17 May 1934, Army representatives visited Somua to brief them on the programme.

Somua was a subsidiary of the large Schneider consortium that had designed the first French tank, the CA 1, in 1916. Eugène Brillié, the designer of the Schneider tank, was now working with another Schneider subsidiary, Škoda in Czechoslovakia, on their LT-35 light tank. This tank is better known by its later German designation of PzKpfw 35(t). Somua

The cavalry didn't want the Hotchkiss since it was too small, automotively suspect and poorly armed. Général Jean Flavigny, the father of the new cavalry mechanized divisions, attempted to discourage Gamelin. However, Gamelin eventually succumbed to political pressure from Fabry and authorized an initial contract for 200 tanks, which was awarded on 6 November 1935. Since the infantry adamantly opposed the type, he directed the tanks to the cavalry on the grounds that it would provide an interim capability for the new cavalry mechanized divisions until the Somua became available.

The new turret for the Somua was designated as APX 1CE, the CE indicating *chemin élargi* (enlarged turret ring). The intention was to permit the use of a 'one-and-a-half man' turret crew. The APX 1CE superficially resembled the APX 4 turret fitted to the Char B1 bis. The principal difference was that the armour basis was only 42mm, versus 60mm on the APX 4, while the APX 1CE used a wider turret ring: 1.13m versus 1.02m.

The Somua AC3 was officially designated as Char rapides 1935 S, usually abbreviated as S 35. Production of the Somua began prior to the official acceptance and the first three tanks were delivered in July 1936. However, these tanks lacked turrets due to the slow pace of production at the Atelier de Rueil casting plant. By January 1937, some 67 tank chassis had been supplied by Somua, but only four were complete with their turrets. The first complete tank was officially accepted by the Army on 15 February 1937. By July 1938, 128 tanks had been delivered but only 48 had turrets. The official armament programme of 7 September 1936 had an objective of 325 S 35 tanks; this was reached with the sixth contract tranche of 12 May 1938, with the 325th tank accepted on 5 January 1940. Due to the worsening international situation, three further contracts were awarded to Somua in 1939 totalling 275 and bringing the overall orders to 600.

The two main bottlenecks to Somua production were the slow pace of turret manufacture and the slow delivery of hull castings due to the overextension of the Schneider and Cail plants on numerous tank and armament programmes. The Girod factory at Ugine was added at the end of 1939, but the situation became so aggravating



A view of Maréchal de logis Tribout's Somua S 35 taken some weeks after the fighting of 13 May 1940. The turret has been traversed and the cupola has been removed. This view shows multiple hits on the hull side. [Patton Museum]



A pair of Somua S 35 of the 4e Escadron, 2e Cuirassiers knocked out near Walhain during the May 1940 fighting. As can be seen, they were engaged from the side by German tanks, including PzKpfw IV judging from the size of the holes on the side stowage bins. (Patton Museum)

that attempts were made to extend casting to plants in Canada and the United States. The intention was to reach a monthly production rate of 30 by 1939 and 36 by the end of 1940, but the best that was accomplished was an average delivery of 20 per month in 1940.

The delays at the casting plants led to the development of the S 40 using welded hull armour and a new ARL 2C welded turret designed at Atelier de Rueil. A pilot of the S 40 with a wooden turret mock-up was completed by April 1940, and there were hopes that it might be ready to replace the existing S 35 on the production lines by July of that year. Somua independently developed the SAU 40 assault-gun version of the S 35 armed with a hull-mounted 75mm gun, a counterpart of the German StuG III assault gun on the PzKpfw III chassis. Although a pilot was completed in 1940, it was not accepted for Army service in time to have reached series production.

There were some minor changes to the Somua design during the production run. The initial batch of 50 tanks used a narrow pitch track with 144 links per side and a pitch of 75mm; subsequent tanks used a new track with 103 links per side and a pitch of 105mm. A revised driver's view port was introduced on tank No. 176 from the third contract batch, delivered in December 1938.

Somua tank production 1939–40

	to Sep 39	Oct 39	Nov 39	Dec 39	Jan 40	Feb 40	Mar 40	Apr 40	May 40	Jun 40
Acceptances	300	0	9	0	27	18	21	20	21	13
Cumulative	300	300	309	309	336	354	375	395	416	429

SOMUA S 35

2^e CUIRASSIERS, 3^e DLM

Crew: 3

Length: 5.1m

Width: 2.12m

Height: 2.6m

Combat weight: 19,500kg

Ground pressure: 850g/cm²

Main gun: 47mm SA 35

Ammunition: 121

Machine guns: 1 × 7.5mm MAC 31

Engine: Somua 8-cylinder, 190hp (141.68kW)

Fuel capacity: 410 litres

Range: 230km

Maximum road speed: 45km/h

Armour: 42mm front; 40mm side; 20mm top

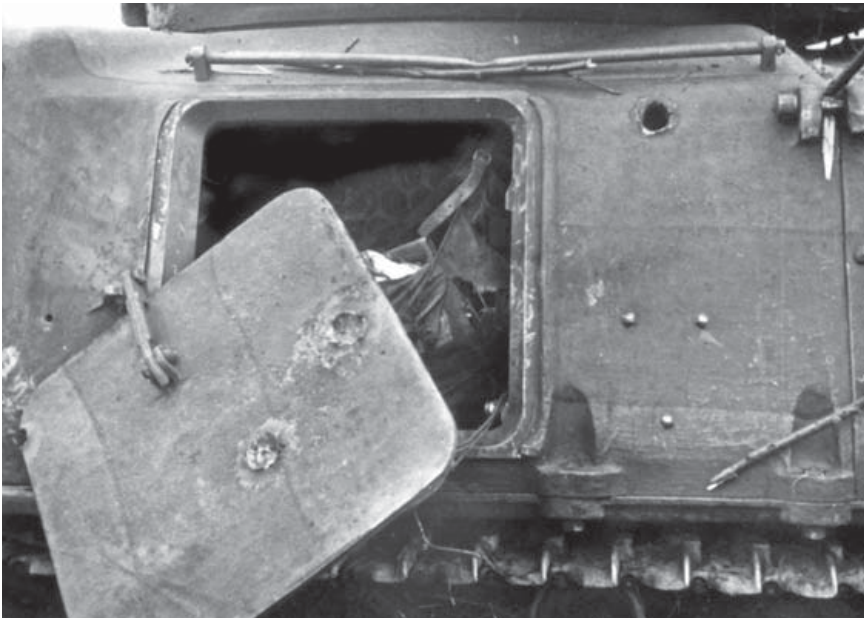


TECHNICAL SPECIFICATIONS

PROTECTION

The Somua S 35 enjoyed a superior level of armoured protection over the PzKpfw III. The Somua had 47mm armour on the hull front and 42mm on the turret front. Although the Somua gun-mantlet castings were not especially thick, actual frontal protection was better than the thickness measurements suggest, since the projectile penetrating the mantlet would then encounter the main turret casting. Somua side armour was 42mm on the turret and 40mm on the hull. The maximum thickness of the PzKpfw III on the hull and turret front and sides was 30mm. The Somua's protective advantages over the PzKpfw III were amplified by the firepower shortcomings of the PzKpfw III as detailed below. As a result, the PzKpfw III could only penetrate the Somua S 35's armour from the side at close ranges, while the Somua could penetrate the PzKpfw III's armour from normal combat ranges.

Some idea of the performance of the 3.7cm gun of the PzKpfw III against the Somua S 35 can be appreciated from a report by PzJgAbt 49 of 4. PzDiv after their experiences in the battle at Hannut–Merdorp on 13 May 1940. The Germans were using the towed 3.7cm PaK 36, but this had the same ballistic performance as the tank gun. The report indicated that at the beginning of the engagement at a range of 350m, one of the battalion's batteries fired seven rounds and scored seven hits but no penetrations. On later inspecting the Somuas, they found that the rounds had gouged a 10mm depression in the frontal armour. Another volley of seven rounds at 250m



The Somua S 35 was vulnerable to close-range side attack from the 3.7cm gun of the PzKpfw III, as is evident in this example knocked out in the fighting at Hannut–Merdorp. It is interesting to note that the rolled-plate armour of the access door endured at least two 3.7cm impacts, but that the cast armour was penetrated, as is visible to the upper right. There had been some concerns about the quality control of French armour casting before the war. [NARA]

scored seven hits, but only a single penetration of the vertical section of the hull armour next to the driver's opening front hatch. The battery could not get any closer due to some swampy ground. Two of the hits caused one Somua tank to lose the use of its gun; one round jammed the turret race and another jammed the gun mantlet. This report was so alarming that General der Kavallerie Erich Hoepner's XVI. Armeekorps (mot.) circulated a special alert to its Panzer divisions the next day, repeating these details.

FIREPOWER

The Somua S 35 was armed with a 47mm SA 35 semi-automatic tank gun with a length of L/32. The gun was aimed with a 4× L 731 telescopic sight. The anti-armour penetration of the French 47mm anti-tank gun was similar to that of the German 3.7cm tank gun, though it should be noted that the French gun fired a much heavier projectile. It was about double the weight, using a much larger propellant charge (290g versus 189g), and offering better behind-armour effect as a result. French anti-tank gun design objectives were to obtain penetration of typical enemy targets at a standard combat range of 400m, and the 47mm gun was capable of penetrating the frontal armour of the PzKpfw III by a comfortable margin at this range. The second advantage of the larger projectile size over the German gun was that it provided the use of a much more effective HE round for attacking non-armoured targets. The 47mm SA 35 used the Obus explosif modèle 1932 HE round, which had a 142g HE charge. In comparison, the German 3.7cm gun fired a 600g Sprenggranate 18 projectile with a modest 26g HE charge. In the wake of the 1940 campaign, the 3.7cm gun was mockingly referred to as the *Panzerklopfgerät* (tank door-knocker).

1940 AFV gun comparative data

Gun	Length weight	Platform velocity	Projectile	Type	Projectile	Muzzle	100m*	500m*	1,000m*
25mm SA 34	L/72	AMD 35	Cart mle 1934 PT	AP	500g	920m/sec	25mm	23mm	22mm
37mm SA 18	L/21	H 35, H 39	OR mle 1935 coiffé**	APC	390g	600m/sec	20mm	14mm	10mm
37mm SA 38	L/33	H 39	OR mle 1938 coiffé	APC	700g	700m/sec	27mm	21mm	16mm
3.7cm KwK	L/46.5	PzKpfw III	Pzgr 39	AP	690g	745m/sec	34mm	29mm	22mm
47mm SA 35	L/32	S 35	BR mle 1935	APC	1,500g	700m/sec	39mm	33mm	26mm

* Penetration data in millimetres, against plate angled at 30 degrees.

** Coiffé = 'capped'.

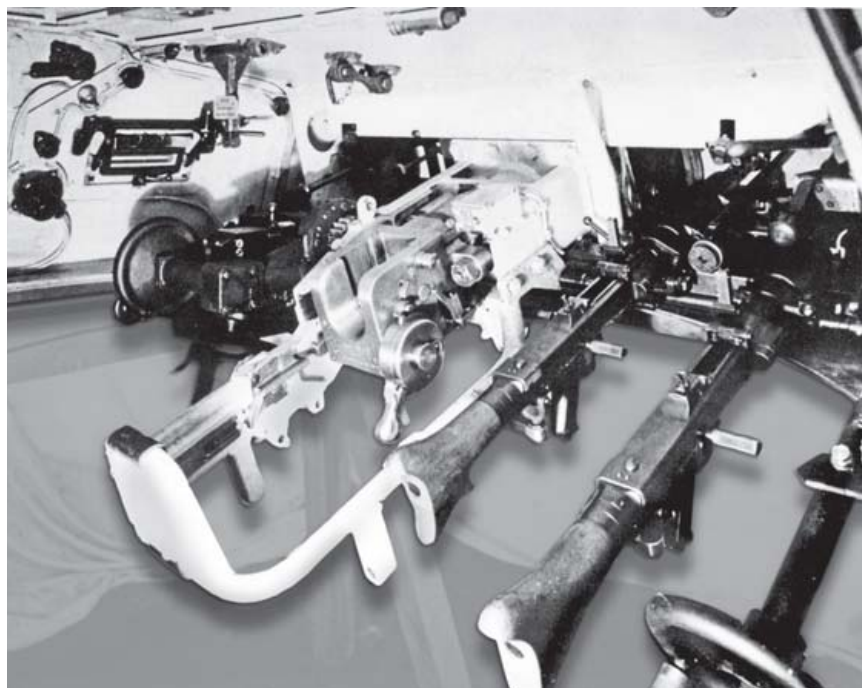
TZF 5B TELESCOPIC SIGHT

The 3.7cm KwK gun on the PzKpfw III was aimed using the Leitz TZF 5b (*Turmzielfernrohr*) monocular telescopic gun-sight. This telescope operated at a single magnification of 2.5× with a 25-degree field of view. The sight contained two engraved reticles. The centre reticle consisted of an aiming triangle in the centre with smaller triangles on either side. The gunner placed the target at the apex of the centre triangle. This reticle provided a limited stadiametric ranging capability, which allowed a well-trained gunner to estimate the range based on the size of the target compared to the large triangle. The unit of measure was a graduation (*strich*) equalling 1m at 1,000m range, with the larger triangle having sides of four graduations and the smaller triangle having sides of two graduations. Such calculations were too difficult in the heat of battle, so a gunner had to be so well trained that the procedure became instinctive. In actual practice, the gunner often used the co-axial machine gun to determine range. The series of triangles was intended to provide the gunner with a method to gauge the speed of a crossing target, but once again, this was too complicated to calculate during real engagements and depended on excellent training. The second reticle provided the

graduations seen around the periphery to help adjust the weapon depending on the weapon and the range. In the case here, the reticle has been turned to the setting for the 3.7cm gun at a range of 100m. The two reticles were mechanically linked and by rotating the reticle, the gunner moved the centre aiming reticle, forcing him to elevate the gun to compensate for range.



In terms of secondary armament, the PzKpfw III had a more extensive array of machine guns. As mentioned before, the design requirements for the PzKpfw III placed significant emphasis on machine-gun armament for dealing with enemy infantry. The two turret 7.92mm MG 34 machine guns were fitted in a separate mounting that could be locked to the main gun for use in a co-axial fashion, or disengaged and operated separately on their own. These two machine guns were supplemented by a



third machine gun in the hull in front of the radio operator. In contrast, the Somua was fitted with only a single 7.5mm MAC 31 machine gun in a separate mount to the left of the main gun. Even though the PzKpfw III suffered from significant firepower shortcomings compared to the Somua, it had distinct fire-control advantages. The awkward layout of the Somua turret degraded its firepower advantages. This is covered in more detail in the tank crew section below.

The early variants of the PzKpfw III were armed with a 3.7cm KwK on the left, and a pair of independently mounted MG 34 machine guns to the right, as evident here in this photo from a technical manual. (NARA)

L.731 TELESCOPIC SIGHT

The 4× telescopic sight for the 47mm gun in the Somua S 35 had several different reticles, of which this was the standard combat type. It had three sets of 'stairs' for super-elevation of the gun to correct for distance. From left to right they were identified as M (*mitrailleuse*, or 'machine gun'); BR (*boulet de rupture*, or 'armour-piercing') and Ex (HE). The commander would estimate the range to target and elevate the gun to compensate for the ballistic fall of the shot based on the range graticules. Here, the range is point-blank, with no need for elevation correction.



MOBILITY

In terms of mobility, both tanks had very similar performance characteristics. The Somua offered slightly higher maximum road speed over the PzKpfw III, but this was only because the German tank had a governor on the engine to prevent excessive speeds. The PzKpfw III had a more powerful engine. The Somua had a slightly lower ground pressure than the PzKpfw III, but not enough to offer any significant difference. The PzKpfw III had a more advanced suspension that provided a smoother ride due to greater road-wheel travel from its torsion-bar suspension. The Somua used a conventional leaf-spring suspension that had far more modest road-wheel travel. The Somua was notorious for poor mobility over low walls or other terrain obstructions. The narrow hull configuration of the Somua gave it a high centre of gravity and made it more prone to turning turtle. At least two Somua tanks of the 2e Cuirassiers toppled over during the fighting in the Gembloux Gap. The PzKpfw III was less prone to this problem due to its wider hull.

The PzKpfw III Ausf E introduced torsion-bar suspension, which was a major step forward in tank design, offering both a smooth ride and reduced maintenance compared to previous leaf-spring designs. (NARA)



THE COMBATANTS

TANK CREW

PzKpfw III

The PzKpfw III crew was larger than that of the Somua: five versus three men. From a tactical perspective, the most important advantage of the larger crew was that it freed the commander from gunnery tasks and enabled him to concentrate on leading the tank and observing the battlefield. The tank commander (*Kommandant*) sat on 'the throne' in the rear centre of the turret behind the main gun. The PzKpfw III was fitted with a special vision cupola that had been inspired by the experiments at Kazan. The cupola had five vision ports that were shielded externally by armoured slides, and then protected again by 50mm-thick safety glass. In addition, the cupola had an overhead split hatch, which allowed the commander to operate with his head out of the tank. German tactical doctrine encouraged tank commanders to remain with their head out of the hatch whenever practical, since this provided better situational awareness than staying within the armoured cupola.

The gunner (*Richtkanonier*) was located in the left side of the turret. The main gun was aimed using a TZF 5b 2.5× telescopic sight with a 25-degree field of view. Traverse and elevation were undertaken with mechanical hand wheels. The traverse could be operated at two speeds, a higher-speed, coarse setting, and a fine setting for precise adjustments. The loader (*Ladekanonier*) had a seat on the right side of the turret and the supply of the main gun ammunition was in two 60-round bins. The gunner was also responsible for loading the two machine guns that were directly in front of him. The driver (*Fahrer*) was located in the left front of the hull. Steering with the

The commander in the PzKpfw III sat on the 'throne' at the rear centre of the turret. The most important tactical innovation in these German turret designs was the provision of a special vision cupola that provided views in all azimuths. In addition, the cupola had a hatch that permitted the commander to ride with his head outside the tank, providing him with better situational awareness. This is a view from inside a PzKpfw III serving with PzAbtzbV 40 in Finland in 1941. [SA-kuva]



Maybach-designed Variorex transmission was hydraulically assisted. The driver had a direct-vision port with armoured cover immediately in front of him protected by thick glass, and when this was closed during combat, he had a KFF 1 binocular periscope that operated through two small apertures in the armour plate above the visors. The radio operator (*Funker*) sat in the right front hull opposite the driver. The basic PzKpfw III was fitted with a Fu 2 radio, which consisted of a receiver but no transmitter. The platoon commander's tank was fitted with a Fu 5 transceiver composed of a SE 10U



The crew layout of the PzKpfw III
Ausf F. [Author]

PzKpfw III Ausf F TURRET



1. Commander's seat
2. Gunner's seat
3. Commander's view port
4. Commander's cupola
5. Leitz TZF 5b telescopic gun-sight
6. Turrent ventilator
7. 3.7cm KwK tank gun
8. Twin 7.92mm MG 34 machine guns
9. 7.92mm machine gun ammunition
10. Loader's seat
11. Spent case bag
12. 3.7cm Sprenggranate 18
13. 3.7cm Panzergranate 39



12

13

10-watt transmitter and a UE ultra-short-wave receiver. Aside from radio operation, this crewman was also responsible for operating the front hull machine gun, located in a ball mount in front of his position.

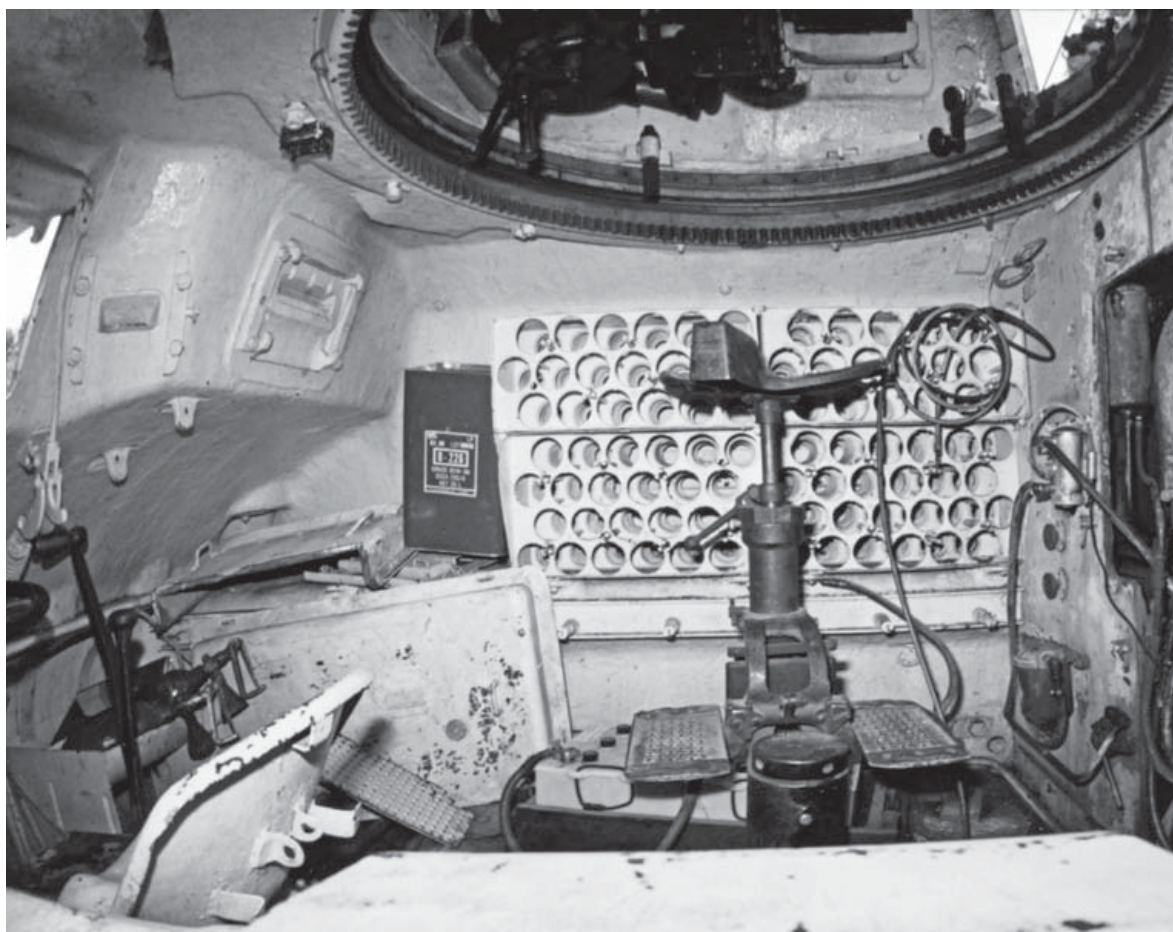
SOMUA S 35

The tank commander (*chef de char*) was usually an NCO (*maréchal de logis*) and he was stationed in the turret of the tank. He sat on a bicycle seat mounted on an elevating post attached to the floor. The commander also had a hatch at the right rear of the turret that folded open to create a seat. It permitted the commander to sit outside the tank during travel outside the combat zone, but it was not intended for his use in combat since it left him too exposed. The commander of the Somua S 35 was a 'one-man orchestra'. He was overwhelmed with duties, since in addition to his command functions within the tank he was also responsible for aiming and firing the 47mm turret gun and co-axial 7.5mm machine gun. Turret traverse was manual or electric, 28 seconds for full traverse in electric mode and 55 seconds by hand. The electric mode usually was used when the tank engine was running since it drew so much electrical power.

Besides overburdening the commander with tasks, the APX 1CE turret was poorly designed to provide him with situational awareness in the heat of battle. The cupola on the turret had no hatch. Each of the turret vision devices was technically well designed, but they did not function well together as a harmonious system. When sitting within the turret to operate the gun, the commander had no forward vision except through the gun's telescope, which gave him a very narrow 'soda-straw' view of the battlefield in front of him. To gain a broader perspective of the battlefield, there was a cupola above,



A view up into the APX 1CE turret of the Somua S 35. The commander sat on the left side of the turret and aimed the 47mm SA 35 gun with a telescopic sight that is missing on this museum tank. The radio-operator/assistant could stand behind the gun to load it, but he had to crouch down below when the spent casing was ejected. [Author]



but the commander had to elevate his seat or stand up to use it. The cupola contained three separate vision devices, including a PPL RX 160 episcopes (68-degree field of view), an Estienne direct-view slit under an armoured flap (114-degree field of view) and a 4× binocular periscope (10-degree field of view). The commander had to decide which of the three devices to use, and then manually traverse the cupola in the right direction to use one of them. After having located the target through one of these devices, the commander had to crouch back down into the turret, reorient himself through the gun's 4× telescopic sight, and find the target again.

As a consequence of the poor turret layout, French tanks tended to operate in a more tentative and sluggish fashion than their German adversaries. German accounts of the 1940 fighting invariably characterize the French tank operations as slow, hesitant and unco-ordinated. This was largely due to the wretched turret design that consumed too much of the commander's attention. Although many accounts suggest that the Somua tank had a one-man turret, this was not in fact the case. This myth stems largely from the similar appearance of the Somua's APX 1CE turret and the APX 4 of the Char B1 bis that was in fact a one-man turret. As mentioned earlier, the APX 1CE was designed with a larger turret ring than the APX 4 to permit the radio operator to serve as the turret loader. He could stand up behind the gun to load it, but he would have to duck down

A view inside the Somua S 35 through the left-side access hatch. The driver's station can be seen to the left, and the commander's seat and main ammunition stowage bin in the centre. [Author]

when the gun was fired or be struck by the brass shell casing when it was ejected during the recoil sequence. The main ammunition stowage was in a large bin on the right side of the fighting compartment, with additional ammunition stowed in the floor below.

The original intention was to fit all Somua tanks with radios, though in practice this did not occur due to shortages. The initial Somua S 35 model was fitted with a second-generation radio, the ER 29, which had four pre-selected frequencies and an effective range of about 5km. The associated command radio was the ER 26 for squadron commanders to communicate with higher command levels. The ER 29 did not have an especially good reputation, and French tankers allege that its transmission could be blocked by trees and other obstructions. Its transmissions were so weak that some units stripped the paint off the aerials in hopes of improving its performance. Only about 100 ER 29 sets were provided to each of the DLM (*divisions légère mécanique*, or light mechanized divisions) at the start of the war, and as a result, not all Somua tanks received a radio set. At least one tank per platoon had the radio, some units had more. The Hotchkiss tanks in the cavalry regiments were not spacious enough to accommodate this radio and so few were in use in 1940. A plan was under way to fit remaining cavalry vehicles with the smaller ER 28 set for communication within the platoon, but these were not yet in mass production at the time of the French campaign.

The third crewman was the driver (*mécanicien pilote*). He was stationed on the left hull side. The Somua had a particularly sophisticated transmission for the period, with steering provided with a steering wheel rather than clutch-and-brake. The driver had an armoured port immediately in front of him, which could be opened up when outside the combat area. When closed for combat, there was an episcopes mounted on the port for vision, and there were PPL RX 160 episcopes on either side for a wider view.



The crew layout of the Somua
S 35. [Author]

SOMUA S 35 TURRET



1. Turret traverse motor
2. Episcopes
3. 4× binocular periscope
4. 7.5mm MAC 31 machine gun
5. 47mm SA 35 tank gun
6. Turret traverse control
7. 47mm Obus explosif modèle 1932
8. 47mm Boulet de rupture modèle 1935



A pair of PzKpfw II of the regimental HQ company of PzRgt 35 in the fields near Hannut, Belgium, on the afternoon of 13 May 1940. The regimental HQ company had three PzKpfw I and three PzKpfw II for security and liaison functions. (NARA)



CREW TRAINING

PzKpfw III: PzRgt 35

The unit at the focus of this study is PzRgt 35 of 4. PzDiv. This regiment was formed at Bamberg in November 1938 under the command of Oberstleutnant Heinrich Eberbach. To speed along training, cadres from existing tank units were provided as the seed of the new unit. The Heer benefitted from a more prolonged period of peacetime conscription than in the French Army of the time, two years instead of one. The regiment had nearly a full year of training prior to its combat debut in Poland in September 1939.

As was the case with all Panzer units at the time, the regiment's principal tank was the PzKpfw I. These light tanks had a crew of two and were armed with a pair of light machine guns. There were 102 PzKpfw I in the regiment in September 1939, supplemented by 66 of the better-armed PzKpfw II. The PzKpfw II was armed with a 20mm automatic cannon, which could penetrate the thicker armour of Polish light tanks such as the 7TP. In 1939, there were few medium or heavy tanks available, and at the time of the Polish campaign that year the regiment had only six PzKpfw IV and no PzKpfw III. The nominal organization of each of the regiment's two battalions was to mix the PzKpfw I and PzKpfw II in three of the companies and to equip the fourth company entirely with PzKpfw II; not enough of the newer tanks were available to permit this.

PzRgt 35 first saw combat on 1 September 1939 at the start of the Polish campaign. The regiment's actions during the campaign are covered in more detail in the section below. From the regiment's perspective, some lessons of the campaign were clear. The PzKpfw I and PzKpfw II tanks were obsolete. They were too weakly armoured even against Polish anti-tank rifles, to say nothing of anti-tank guns. There were hopes that new tanks would arrive prior to the campaign in France, but on 10 May 1940 the regiment still had only 20 PzKpfw III and 12 PzKpfw IV tanks, in addition to 69 PzKpfw I and 50 PzKpfw II.

The regiment underwent reorganization after the Polish campaign. Each of the regiment's two battalions consisted of four tank companies: an HQ company (*Stabskompanie*), a medium tank company and two light tank companies. The regiment's new PzKpfw III and PzKpfw IV were located in the two medium companies (2./PzRgt 35 and 8./PzRgt 35) while the light tank companies were the usual hybrid mix of PzKpfw I and PzKpfw II. There was no standard pattern; some companies had 14 PzKpfw I and ten PzKpfw II, other companies had a mix of 12 PzKpfw I and nine PzKpfw II. The mixture of multiple types in a single company had been criticized in the wake of the Polish campaign as a logistical headache. However, in view of the battlefield weakness of the obsolete PzKpfw I, it would have been dangerous to concentrate them all in their own companies. The HQ companies were equipped with two command tanks as well as five or six light tanks for security and liaison. The regimental and battalion commanders were each allotted one of the new Befehlspanzerwagen III. Each of the HQ companies also had a small command tank based on the PzKpfw I chassis.

Another organizational change in March 1940 was the transfer of 3./PzRgt 35 to a new task force being assembled for the campaign in Norway. As a result, 3./PzRgt 35 had to be re-created, in part from cadres of other companies and in part from new troops. By 1940, the Heer was well aware that the French Army was equipped with thickly armoured tanks that were impervious to the weapons on their PzKpfw I and PzKpfw II light tanks. However, there was some hope that the French tanks would be vulnerable at very close ranges from the side. Rather than demoralize the crews with specific technical details of the enemy tanks, an indoctrination campaign was started that emphasized the need to close on enemy tanks and dominate enemy tank formations by engaging them quickly before they had time to react.

Regardless of the technical and tactical problems facing PzRgt 35 in May 1940, the unit had the most precious resource of all: hard-won battle experience. They had emerged from the Polish campaign bloodied but confident.

SOMUA S 35: 2e CUIRASSIERS

The French unit at the heart of this book is the 2e Régiment de cuirassiers, one of France's oldest cavalry regiments, which traced its history back to 1635 and the Thirty Years' War. It fought in World War I, originally as a horsed cavalry formation, but in a dismounted fashion with the advent of trench warfare. The regiment was officially disbanded in August 1919 as part of the Army reforms, with its traditions maintained by the 12e Cuirassiers. The regiment was recreated on 1 January 1940 at the Saumur cavalry school under the command of Colonel Jean Touzet du Vigier as one of the two cavalry tank regiments of the new 3e DLM.

The organization of the new regiment was undertaken by the Centre d'Organisation Mécanique de la Cavalerie No. 9 in Orléans, which drew troops from various cavalry depots. The unit was composed entirely of cavalry reservists rather than new draftees. In view of the high priority of the regiment, the centre had more discretion than usual in selecting the cadres for the new units, with some hope of getting more troops already familiar with cavalry-tank operation. However, the Somua was a new tank type, and there were very few reservists with any training on the new tanks. A number of the regiment's Somua tanks, even as late as May 1940, had only two crewmen.

HEINRICH EBERBACH

Heinrich Eberbach served as the commander of PzRgt 35 of 4. PzDiv during the battle of Hannut in May 1940 and later went on to become one of Germany's most successful Panzer commanders. Eberbach was a cadet in the Württemberg Army at the start of World War I, and received a field commission in February 1915. He was wounded twice in France in 1915, including a severe facial injury. He was captured by the French Army during the fighting in Champagne in 1915, but in December 1916 was released during a prisoner-of-war exchange due to ill health. Returning to service, he was dispatched to the Asien-Korps in Palestine in 1918, and was captured by the British during the fighting. He was twice awarded the Iron Cross during the war as well as other military distinctions. After demobilization, Eberbach served in the Württemberg police until joining the Heer in 1935, retaining his police rank of *Major*. He commanded Panzer-Abwehr-Abteilung 12 in Schwerin in October 1935. He was promoted to *Oberstleutnant* in 1937 and assigned as commander of PzRgt 6, and subsequently of PzRgt 35 in Bamberg in November 1938.

Eberbach led PzRgt 35 during the invasion of Poland in 1939, taking part in the border battles as well as the siege of Warsaw. He continued to command PzRgt 35 in the French campaign of 1940, and his leadership in the capture of the key Romilly bridge on 13 June 1940 led to his decoration with the Knight's Cross of the Iron Cross. He was a determined and aggressive commander, and had two tanks shot out from under him in the fighting in May 1940. He was still in command of PzRgt 35 at the start of the Russian campaign in June 1941, though he was assigned shortly after the start of the campaign to lead PzBrig 5, receiving the Oak Leaves to the Knight's Cross at the end of 1941. He was promoted to *Generalmajor* in March 1942, taking over command of 4. PzDiv. He was eventually elevated to corps command, leading XLVIII. Panzerkorps in November–December 1942 before being severely wounded during the fighting near Stalingrad. After his return to duty in early 1943, he was promoted to *Generalleutnant* and assigned as *Inspekteur der Panzertruppen des Heimatheeres* (Inspector



Heinrich Eberbach, taken after his capture in August 1944. (LAC PA-189586)

of the Panzer Troops). Once he was fully recovered, he was promoted again to *General der Panzertruppe* and led several Panzer corps on the Eastern Front in the autumn and early winter of 1943 before being evacuated for serious medical problems in late 1943. After his recovery, he was again posted as *Inspekteur der Panzertruppen des Heimatheeres*. In June 1944, he was assigned to the staff of Heeresgruppe B in Normandy, taking over command of Panzergruppe West in early July 1944. In the difficult circumstances following the catastrophic Falaise Gap encirclement, he was appointed to take over command of 7. Armee, but was captured by British troops on 31 August 1944.

After his release from captivity in 1948, Eberbach served as the director of a Protestant charity organization aiding German refugees, and in the 1950s he served as an adviser to the new Bundeswehr.

JEAN TOUZET DU VIGIER

Jean Touzet du Vigier commanded the 2e Cuirassiers during the battle of Hannut in May 1940. Du Vigier graduated from the Saint-Cyr military academy shortly before the outbreak of World War I and served in the 9e Cuirassiers, rising in rank to *capitaine*. In 1920, he was dispatched to Poland with a military mission of French advisers to assist the Polish Army in its war with Bolshevik Russia; his immediate superior was Charles de Gaulle. Du Vigier became known as one of the proponents of mechanization within the cavalry and in 1936, he led the cavalry section of the *Centre d'études tactiques interarmes* (Combined-Arms Tactical Studies Centre) at Versailles. He was assigned command of the 2e Cuirassiers in January 1940.

Du Vigier led the 2e Cuirassiers during the French campaign in May–June 1940. Unlike Eberbach's PzRgt 35, the 2e Cuirassiers was generally used in dispersed squadrons with separate missions. As a result, du Vigier's command style was markedly different since his role was to control the scattered squadrons, not to lead a concentrated unit from the turret of a tank as was the case with Eberbach. One of his most important contributions to the battle was co-ordinating the fire requests between his regiment and the divisional artillery, the 76e RA. German memoirs of the battle are full of dread at the level of artillery fire directed against them during the fighting.

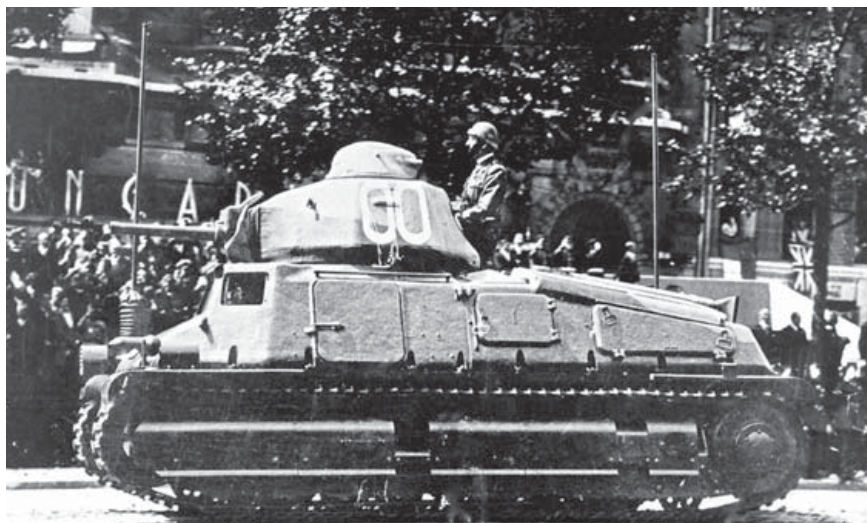
Du Vigier's career in the years immediately after the fall of France was quite different from Eberbach's. He was entangled in the political intrigues of the official Vichy French government and the nascent Free French movement under his former commander, Charles de Gaulle. Following the June 1940 armistice, du Vigier remained in France as head of the cavalry department at Army headquarters in Versailles. However, he secretly collaborated with the French resistance, especially in establishing weapons caches for future actions. Senior French commanders tolerated his activities, but in early 1942 sent him off to Tunisia to avoid recriminations from collaborationists in the Vichy French government and the Germans. Following Operation *Torch*, the November 1942 Allied invasion of



Jean Touzet du Vigier while he was commandant of the city of Strasbourg. (NARA)

French North Africa, du Vigier immediately joined de Gaulle's Free French forces. He was promoted to *général de brigade*, and took command of the newly formed 1er DB (1er Division blindée, or 1st Armoured Division) in January 1943. This unit was trained and equipped by the US Army in North Africa, and took part in the Operation *Dragoon* landings in southern France in August 1944. The 1er DB took part in the liberation of Toulon, Marseille and Mulhouse and was the first Allied unit to reach the River Rhine in November 1944. During Germany's last-ditch Operation *Nordwind* offensive in Alsace in January 1945, de Gaulle appointed du Vigier to command the embattled Alsatian capital, Strasbourg. Du Vigier was appointed chief of staff of the French Army in 1945 and reached mandatory retirement age in 1946.

The Somua crews had limited training due to the late arrival of their S 35 tanks. The first Somua tanks were not ready until 1938 and made their public debut at the National Day parade in Paris in July of that year. At this stage, the tanks were not yet complete, and lacked the armoured visors for the driver. These tanks belonged to the 13e RD of the 2e DLM, and this is the regimental commander's tank, with both radio aerials in place. [NARA]



Although the cavalry had originally planned to equip these tank regiments only with the Somua tank, the large number of Hotchkiss light tanks forced on the cavalry by the Army high command meant that instead they became hybrid regiments with a nominal strength of 45 Somua and 45 Hotchkiss H 39 tanks. The basic combat units of the regiment were four tank squadrons (*escadrons*) administered under two group headquarters. In the 2e Cuirassiers, the 1er Groupe d'Escadrons contained both Somua squadrons, the 1er Escadron under Capitaine de Beaufort, and the 2e Escadron of Capitaine Hardoin. Each squadron had four troops (*pelotons*), each with five Somua tanks. The 2e Cuirassiers was luckier than many of cavalry tank regiments formed previously for the 1re and 2e DLM, since it received the newer and more mature H 39 and not the troublesome H 35. About 85 per cent of the regiment's H 39 were armed with the old 37mm SA 18 gun, and not the new 37mm SA 38 gun. The 37mm SA 18 had very poor anti-armour performance, even against tanks as thinly armoured as the PzKpfw I.

During preliminary training, the 2e Cuirassiers was based near Fontevault. The regiment conducted technical training on the new tanks for two months around Saumur, and then on 28 February 1940 was transferred by train to the cavalry base at Sissonne, where it was subordinated to the new 5e BLM, which administered both of the tank regiments of the 3e DLM. For five weeks from 3 March to 8 April, the Somua squadrons were put through intensive field exercises, live-fire gunnery training, and finally squadron and regimental manoeuvres. On completion of this training, the regiment was deployed closer to the Belgian border at a base to the east of Cambrai, and after a false war alarm on 14 April, they were moved again to a cantonment west of Mauberge on the Belgian border.

In terms of training, the 3e DLM and its constituent units were the least trained of the three French mechanized cavalry divisions. The division's formation was extremely late, and memoirs make it clear that some tank crews had only marginal technical prowess with their new tanks. Unlike their opponents in PzRgt 35, they had no practical battle experience.

HIGHER FORMATIONS AND DOCTRINE

THE PANZER DIVISIONS

During World War I, Germany showed less enthusiasm for tanks than either France or Britain. The extensive and successful use of tanks in the final campaigns of 1918 began to influence the German viewpoint, but the Versailles Treaty prohibited Germany from possessing tanks. What was forbidden became especially alluring, and the post-war Reichswehr began to experiment with tanks in a surreptitious fashion. Like most European armies, the Reichswehr began extensive efforts at motorization. There were the predictable debates between the infantry and cavalry over who would take precedence in developing the Heer's new mobile force. Agitation for the Panzer force was centred in the office of the Inspekteur für Heeres-Motorisierung (Inspector for Motorized Troops), headed after 1931 by Generalmajor Oswald Lutz and his chief of staff, Oberstleutnant Heinz Guderian. Lutz was the architect of the early Panzer force, and Guderian became its most vocal proponent and the key advocate of the Panzer's tactical and operational potential.

German tactical doctrine in World War I had evolved in the direction of using specialized assault troops as the spearhead of the attack. The storm troops employed infiltration tactics to penetrate enemy defences in advance of the main body of infantry. German military thinkers began to envisage the tank as a more mobile and survivable version of the storm troops. More importantly, they began to argue that tanks could advance the tactical doctrine one step further – large tank formations could restore offensive mobility to the battlefield using grand infiltration tactics at corps and field army level.

Hitler's rise to power enabled the Heer to begin the first real steps towards mechanization. The Nazi Party had bold ambitions on the world scene, and supported vigorous re-militarization as a key step in their plans. The first Panzer unit was clandestinely created at Zossen in November 1933 as an experimental unit. The first tank to enter mass production was the PzKpfw I. Guderian wanted to wait for better



The only German tank capable of knocking out the Somua S 35 frontally was the PzKpfw IV, armed with a short 7.5cm gun. This PzKpfw IV Ausf D was from the medium-tank company of 4. PzDiv's I./PzRgt 36, and is depicted here during the 1940 French campaign. [NARA]

designs such as the proposed ZW and BW (PzKpfw III and IV), but Lutz wisely recognized that they were years away from production. If the Germans had waited for the PzKpfw III and PzKpfw IV, the Heer would have had barely 300 tanks in September 1939. While the PzKpfw I was not ideal, it was ready for production and would provide the seeds from which to create the new Panzer units. By 1935, enough had been manufactured that discussions began about the scale and direction of mechanization.

In January 1935, Lutz recommended the formation of the first three Panzer divisions and three Panzer brigades. Hitler encouraged the mechanization of the cavalry, and so the proposed Panzer brigades were converted from horsed cavalry regiments. The General Staff wanted each infantry division to be supported by a Panzer regiment, but it was recognized that this was unrealistic in view of the large number of tanks that would have been required. Instead, the proposal was trimmed to the creation of a Panzer regiment for each of the 12 army corps. In the event, Lutz and Guderian convinced the Heer to deploy the Panzer regiments in specialized combined-arms divisions, the Panzer divisions.

The first Panzer division was created in the summer of 1935 near Münster, with two more following as more tanks became available. 4. PzDiv was formed in 1938 at Würzburg. The early Panzer divisions had their infantry and armour components under separate brigade headquarters, so in the case of 4. PzDiv, this consisted of 4. SchtzBrig and PzBrig 5. Regardless of official tables of organization and equipment, shortages of both tanks and trained troops meant that Panzer division organization in 1938–40 was not standardized and was in constant flux. Some Panzer divisions had two infantry regiments, while others such as 4. PzDiv had only one regiment. The core of each of the Panzer divisions was the armoured component, which usually included two Panzer regiments. In the case of 4. PzDiv, these were PzRgt 35 and PzRgt 36.

Combined-arms tactics at this time were still in their infancy. The infantry in the Panzer divisions was motorized, but not yet mechanized. The standard means for transporting the infantry was the Krupp L2H143 truck, which could carry eight riflemen besides the driver; an infantry section required two trucks. These early infantry vehicles had marginal cross-country capability and were road-bound in most circumstances. The trucks served as a mode of transportation, but the troops dismounted from the vehicles before reaching the battlefield and fought on foot. This created a tactical dilemma regarding the co-ordination of Panzer and infantry troops. If the Panzers waited for the accompanying infantry, the pace of the advance would inevitably be slowed down. As a result, the Panzer divisions tended to fight with separate brigades, the Panzer brigades performing one mission and the *Schützen-Brigaden* having a separate assignment.

The technical solution to this tactical dilemma was to develop an infantry vehicle better able to keep up with the tanks in cross-country manoeuvres. This would permit more refined combined-arms tactics and allow battlefield integration below regimental level. Such a vehicle, the SdKfz 251 infantry half-track, was starting to enter production in 1939. At the time of the French campaign in 1940, there were less than a dozen companies of these armoured half-tracks and so they were not yet available in sufficient numbers to alter the combined-arms tactics. 4. PzDiv received only 14 SdKfz 251 armoured half-tracks in time for the French campaign; they served in I./SchtzRgt 12.

The Panzer division was not the only form of mechanized division in 1939. The German cavalry also decided to mechanize, but based on the *leichte-Division* (light division) organization. These divisions had a smaller tank complement, usually a



About 275 of the new SdKfz 251 armoured infantry half-tracks reached service by May 1940, but not enough to significantly affect German combined-arms tactics. These two vehicles are pictured near Ardres on 25 May 1940. [NARA]

single tank battalion, three or four *Kavallerie-Schützen* (motorized dragoon) battalions, a motorcycle battalion and various supporting arms. Although inspired by French cavalry mechanization, these divisions were substantially weaker than the French mechanized cavalry divisions. Four of these took part in the 1939 campaign in Poland.

In September 1939, 4. PzDiv saw its first combat test in Poland as part of XVI. Armeekorps (mot.). On 1 September 1939 it attacked the defensive positions of the Polish Wolynska Cavalry Brigade around the village of Mokra. The Polish cavalry regiments used their usual defensive tactics and fought on foot from prepared positions, supported by tankettes, field artillery and an armoured train. The German tank attacks were poorly co-ordinated with the accompanying infantry regiments and they suffered significant casualties at the hands of Polish anti-tank rifles and artillery. The outnumbered Polish cavalry brigade was forced to retreat by the end of the day, but German losses were heavy. PzRgt 35 had 45 tanks knocked out or disabled, of which 15 were total losses. Casualties in PzRgt 35 were 29, including the commander of I./PzRgt 35, who was severely wounded. After learning the bitter lesson that tanks alone were not sufficient against an entrenched enemy, the regiment co-ordinated its operations on 2 September 1939 with the division's infantry regiment, SchtzRgt 12, and had far better success against the Polish cavalry brigade.

By the end of the first week of fighting, the division had penetrated through the crust of the Polish defences and made a dash to Warsaw. This operation highlighted the revolutionary value of the Panzer division on the modern battlefield. The Panzer division was far more valuable in the fast exploitation role rather than in a grinding breakthrough battle against prepared defences, as had occurred at Mokra. On the evening of 8 September 4. PzDiv began entering the suburbs of Warsaw. By this stage of the campaign, PzRgt 35 was down to 120 tanks of the original 173. The losses were not entirely due to combat, but included significant numbers of mechanical breakdowns and accidents. The regiment had expected to find Warsaw an open city, but instead the streets had been barricaded and field guns had been set up as improvised anti-tank weapons to cover key intersections. Street fighting was not the ideal use of a Panzer division, and by the end of the day's fighting in

A very small number of PzKpfw III Ausf E saw combat use in Poland in September 1939, as by this time barely 50 had been accepted from the factories. [Author's collection]



Warsaw PzRgt 35 had been reduced to 57 tanks, with 30 of the division's tanks knocked out on the streets of the city. With only a single infantry regiment, the division was not well suited to urban combat. Later on 9 September, 4. PzDiv was pulled out of Warsaw and reassigned to help thwart the Polish counter-offensive along the River Bzura.

The regiment's hardest day of fighting during the campaign was on 16 September, against the Polish 58th Infantry Regiment near the village of Ruszki during the Bzura battle. At the time of this battle, PzRgt 35 had only 89 tanks operational, about half its initial strength. During the day's fighting, 6./PzRgt 35 was nearly wiped out during an encounter with the Polish 6th Battery, 17th Light Artillery Regiment, which was armed with four 100mm howitzers and fired in an improvised direct-fire anti-tank mode. The fighting in the 'Devil's Cauldron' lasted until well after dark. By the end of the day, the regiment had lost 23 tanks and suffered 49 casualties; only 65 tanks were still operational. The reason that the regiment lost so many tanks that day was that the Poles remained in control of the battlefield after the fighting. They sent out engineers with demolition charges to blow up damaged and disabled tanks, which might have been recoverable in other circumstances. By the end of the campaign, PzRgt 35 had suffered 122 casualties. Tank losses had been high: 45 total losses and many more tanks damaged but repairable. The division's other regiment, PzRgt 36, had suffered 49 total losses.

The division was re-equipped after the Polish campaign, but there were still widespread shortages of the new medium tanks. Even in the light tanks, 4. PzDiv still had a high portion of the old and underpowered PzKpfw I Ausf A. From a broader divisional standpoint, the most important improvement was the addition of a second infantry regiment, SchtzRgt 33, which brought the division into line with other Panzer divisions. As a result, the division's Schützen brigade and Panzer brigade had a better balance, with two regiments each. Combined-arms tactics were not yet mature, and there was still some belief that concentrated tank forces could overwhelm enemy infantry positions even without friendly infantry support. The Polish campaign should have raised questions about this tactic, as the division suffered heavy losses on 1 September at Mokra and 16 September at Ruszki due in no small measure to poor tank-infantry cooperation when attacking prepared infantry positions. This problem would be evident again in the 1940 French campaign.

There were many other organizational changes to the Panzer force. The cavalry's light divisions were not as successful as the Panzer divisions. As a result, the various separate Panzer regiments earmarked for corps support were used instead to convert the light divisions into Panzer divisions, providing the Wehrmacht with ten Panzer divisions at the time of the French campaign.

4. PzDiv (Generalmajor Stever)

PzBrig 5 (Oberst Breith): PzRgt 35 (Oberstleutnant Eberbach); PzRgt 36 (Oberst von Jesser)

4. SchtzBrig (Oberst Freiherr von Boinenburg-Lengsfeld): SchtzRgt 12 (Oberstleutnant Freiherr von Lüttwitz); SchtzRgt 33 (Oberst Fehn)

PzAufklAbt 7 (Major Marzhan)

PzJgAbt 49 (Major Wedra)

ArtRgt 103 (Oberstleutnant Geist)

FRENCH MECHANIZED CAVALRY DIVISIONS

As was the case elsewhere in Western Europe, traditional French horsed cavalry found that World War I was their swansong. The traditional role of the cavalry as the mobile arm of decision on the battlefield was in serious doubt. To redeem the cavalry from oblivion, senior French commanders tied the cavalry to a mission rather than a mode of transport. The most influential cavalry officer of the interwar period, Général Maxime Weygand, argued that 'The cavalry will keep its *raison d'être* as long as speed and surprise are valued on the battlefield ... The war of tomorrow will be, more than ever, a war of machines.'

After Weygand became head of the general staff in January 1930, he instituted a reform plan that envisaged a complete overhaul of the cavalry. The impediments to cavalry mechanization were both technical and budgetary. Experiments in the 1920s with half-tracked armoured cars and *dragons portés* (motorized dragoons) carried on half-tracked trucks had proven encouraging, but existing vehicles were not sufficiently robust during prolonged war-games. The cavalry began by mechanizing one brigade in four of the modernized light cavalry divisions.



The Laffly S20TL was a specialized all-terrain truck produced specifically for the *dragons portés*. In the basic *voiture fusiliers* version, it carried ten troops and two FM machine guns. Specialized versions were also built for mortar, machine-gun and anti-tank troops. (Patton Museum)

The highlight of cavalry mechanization was the DLM (*division légère mécanique*, or light mechanized division). The conversion of three DC (*division de cavalerie*, or cavalry division) was ordered at the end of 1934, though this did not begin until 1935. The 1^{re} DLM was created on 1 July 1935 on the basis of the existing 4^e DC, and the 2^e DLM in the summer of 1936 on the basis of the 5^e DC. The 3^e DLM did not begin forming until January 1940. Two other divisions, the 4^e DLM and 7^e DLM, were hastily formed in June 1940 but were never complete.

These divisions were intended for the traditional cavalry roles of reconnaissance, flank security for infantry corps, offensive exploitation of breaches in the enemy lines, and defensive responses to enemy breakthroughs. The heart of the division was a pair of brigades. Both received the designation BLM (*brigade légère mécanique*, or light mechanized brigade), even though they had fundamentally different compositions. One of these contained the main tank elements of the division, consisting of two *régiments de combat*. The other brigade consisted of a *régiment de découverte* (reconnaissance regiment) equipped with Panhard AMD 35 armoured cars, and an RDP (*régiment de dragons portés*, or motorized dragoon regiment) of truck-borne infantry.

3^e DLM (Général de division Langlois)

5^e BLM (Général de la Font): 1^{er} Cuirassiers (Lieutenant-colonel de Vernejoul); 2^e Cuirassiers (Lieutenant-colonel Touzet du Vigier)

6^e BLM (Colonel Dodard des Loges): 11^e RDP (Colonel Leyer); 12^e Cuirassiers (Colonel Renouy)

76^e RA (Lieutenant-colonel Dubouloz)

When the DLM were first created in 1935–36, no Somua tanks were yet available. As a result, the first four *régiments de combat* were forced to rely on the inadequate Hotchkiss H 35 tanks. As the Somua tanks began to enter service, they were gradually integrated into the *régiments de combat*. By the time of the French campaign, the cavalry tank regiments were of mixed composition, usually including two squadrons of Somua and two of Hotchkiss. Since the 3^e DLM was not created until January 1940, its tank regiments were based from the outset on a Somua/Hotchkiss mix. Most of the H 39 in the 3^e DLM were fitted with the old 37mm SA 18 gun with poor anti-tank performance; only 25 of the division's Hotchkiss H 39 were armed with the improved SA 38 gun.

The French DLM were much closer in strength and organization to the German Panzer division than were the four DCR (*division cuirassée de réserve*, or reserve armoured division) formed by the infantry branch in 1940. The DLM was a balanced, combined-arms force, while the DCR was only about half its size, with a single infantry battalion. There were several organization differences between the French and German divisions. Both the DLM and the Panzer division deployed two regiments of tanks. On average, the DLM had 245 tanks compared to 265 in the Panzer divisions. In the case of 4. PzDiv, it had more tanks than was usual, but it was not as well equipped with new medium tanks and had a preponderance of the older light tanks. The disparity was greatest when comparing the strength of the French and German tank regiments. The tank regiments of 4. PzDiv averaged 157 tanks each compared to



only 84 in the French regiments, but the French regiments each had 48 Somua tanks while the German tank regiments had only 32 PzKpfw III and PzKpfw IV medium tanks. The Panzer divisions concentrated all of their tanks in the two Panzer regiments; the French DLM had three of their 11 squadrons organic to the RDP.

The Panzer divisions had a larger infantry element, usually two motorized infantry regiments with a total of four battalions compared to a single motorized infantry regiment with three battalions in the French DLM. However, the RDP was more heavily equipped than the German *Schützen-Regiment*, having three organic light-tank squadrons. In the 1re and 2e DLM, the light tanks in the RDP were the AMR 33 and AMR 35 light reconnaissance tanks, but in the 3e DLM, the three tank squadrons of the 11e RDP were equipped with 23 Hotchkiss H 35 and 46 H 39 light tanks.

One of the last Somua S 35 units to be formed was the 3e RD, which was attached to de Gaulle's hastily formed 4e DCR in June 1940. This was the only cavalry tank regiment attached to an infantry armoured division. This is a 3e RD Somua S 35 with its machine-gun mantlet knocked off. (Tom Laemlein/Armor Plate Press)

Organizational comparison, May 1940

	3e DLM	4. Pz Div
Tank regiments	2	2
Motorized infantry battalions	3	4
Troop strength	10,446	12,340
Light tanks	163	258
Medium tanks	96	73
Tanks sub-total	247	331
Armoured cars	48	56

THE STRATEGIC SITUATION

Some idea of the ferocity of the fighting around Hannut can be seen in this close-up of a Hotchkiss H 39 of the 11e RDP. Multiple machine-gun and 2cm hits can be seen as well as at least two 3.7cm penetrations, probably from the 3.7cm gun of a PzKpfw III. (NARA)

FRENCH PLANS

In the wake of the horrible blood-letting of World War I, France retreated to a profoundly defensive strategy. Manpower shortages encouraged the use of defensive fortifications in the contested Alsace-Lorraine region, the famous Maginot Line. The Maginot Line also served to limit German offensive options, making Belgium the

most obvious invasion route. Belgian neutrality created a dilemma for French defence planners, since France was unwilling to cut off a traditional ally by extending the Maginot Line along the Belgian frontier. The consensus among French leaders was that Germany would be forced to replay the Schlieffen Plan from 1914, striking through Belgium into northern France.

France was determined to avoid the calamity of 1914–18 when most of the fighting took place in the industrialized northern region of France, resulting in economic devastation. Even though Belgium was officially neutral, there was the expectation that in the event of a German invasion, France would come to its aid. Likewise, Britain was



intent on keeping German forces away from the Belgian coast for fear that the Luftwaffe could use Belgian airfields to stage bomber raids on London. Allied plans intended to dispatch the best French divisions deep into Belgium to shield northern France against another prolonged campaign on French soil, where they would be supported by the British Expeditionary Force (BEF). This was called Plan D; the codename referred to the River Dyle, where it was expected that the main defensive line would be established.

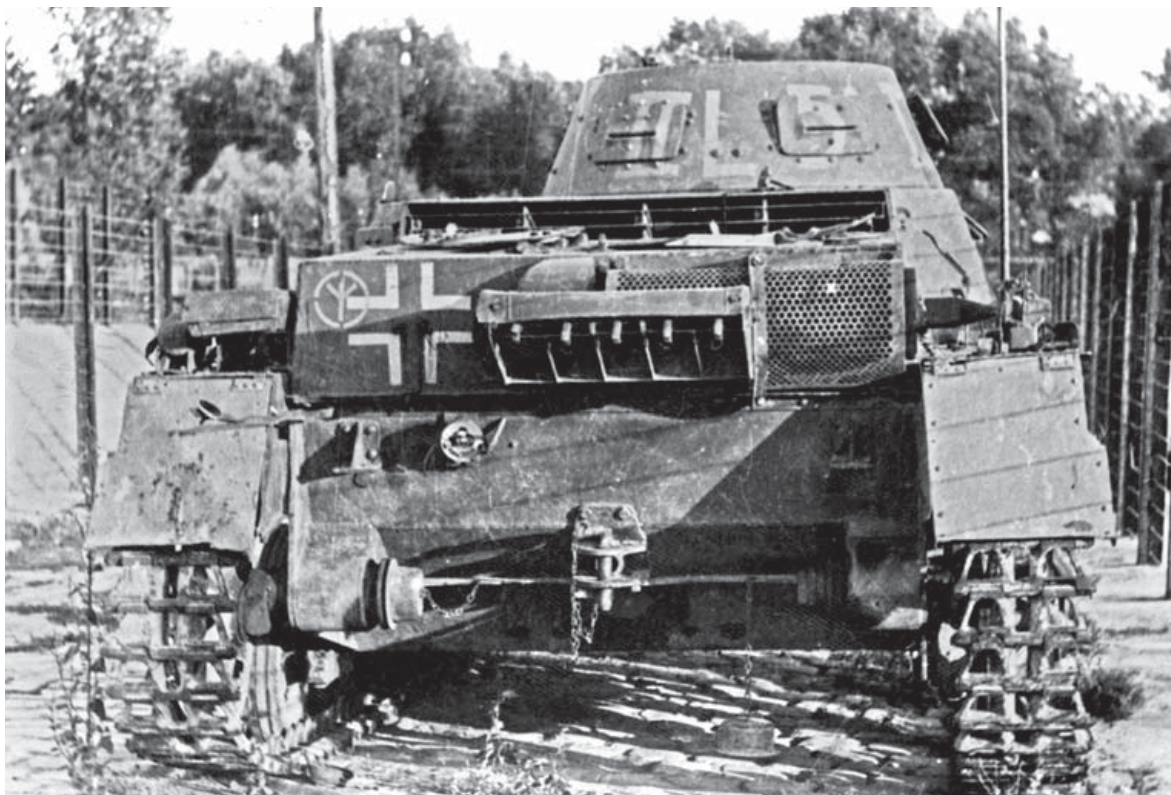
Since the forward deployment of several French field armies and the BEF would have to take place quickly during the course of the German advance, the Allied planning required the commitment of most of the Allied mechanized divisions into Belgium. In the French case, two of the best French mechanized divisions, the 2e and 3e DLM, were combined into Général René Prioux's Corps de cavalerie. This force was intended to serve as a mobile screening force that would race into Belgium and establish a preliminary defensive line. The corps was expected to hold this line for a few days to give the follow-up force of infantry divisions enough time to move up into Belgium.

GERMAN PLANS

The original German planning for the invasion of France was remarkably unimaginative, and largely a replay of the 1914 Schlieffen Plan as the French expected. The most vocal critic of this plan was the Heeresgruppe A chief of staff, Generalleutnant Erich von Manstein. He contended that such an operation would encourage the French to push their best units into the narrow Belgian corridor and result in another grotesque stalemate, as had occurred in 1914–18. Manstein offered a far bolder and riskier scheme. The new Panzer divisions gave the Wehrmacht a rapid-manoeuver capability that could offer tactical surprise against the likely Allied deployment into Belgium. Instead of wasting this force on a grinding battle of attrition in the Belgian corridor, Manstein proposed that a large Panzer force secrete itself in the forests of the Eifel region, and then burst out through the Ardennes in Luxembourg, exiting the forests on the Sedan behind the main French and British forces.

Manstein's *Sichelschnitt* ('sickle cut') manoeuvre would require a feint to keep the French and British focused on their lunge into Belgium. While Heeresgruppe A waited to strike through the Ardennes, Heeresgruppe B would take the traditional route through the Netherlands and Belgium, tying down the French and British forces. The role of Heeresgruppe B was to serve as 'the matador's red cape', luring the Allied armoured bull to rush headlong into Belgium, while Heeresgruppe A served as the 'matador's sword', awaiting its chance to strike unexpectedly in the unprotected flank.

Manstein's plan was risky for several reasons. Many military leaders, both German and French, felt that the Eifel and Ardennes forests were not suitable for tank deployments. This may have been the case, but Manstein was not proposing to conduct combat in the forests, only to move through the border region on the way to the open country of the Sedan. Nevertheless, the limited number of roads exiting the Ardennes created a number of bottlenecks that could be abruptly closed if the French and British reacted quickly. Manstein argued that the Allies were likely to be too preoccupied with their push into Belgium to pay attention to the Ardennes as long as



The PzKpfw I proved ill-suited to combat with the thickly armoured French tanks. This PzKpfw I Ausf B of II./PzRgt 36 was knocked out during the fighting around Hannut–Merdorp on 13 May. [NARA]

the ‘red cape’ deception of Heeresgruppe B was convincing. To make the ruse more plausible, Manstein sacrificed two Panzer divisions – 3. PzDiv and 4. PzDiv, in Hoepner’s XVI. Armeekorps (mot.) – to take part in the Heeresgruppe B attack. Manstein felt that the presence of these Panzer divisions would reinforce the notion that this was the main focus of the German attack; a thrust without a large Panzer component would trigger the suspicion of the French and British commanders.

Like their French counterparts, the German general staff viewed the Ardennes as an impenetrable tangle of hills and forest. The tide began to turn in favour of Manstein’s plan when a German aircraft carrying portions of the Luftwaffe plan for the campaign landed in Belgium in January 1940 due to bad weather. The officer destroyed most of the plans before they were seized by Belgian authorities, but Berlin was anxious that the original plan had been compromised. Although the Generalstabschef des Heeres, Generaloberst Franz Halder, had originally opposed Manstein’s bold alternative, he began to appreciate that such a gamble was Germany’s only way to win a quick and decisive victory against the French and avoid another protracted war as in 1914–18. Hitler had expressed some vague thoughts about a bolder scheme towards Sedan, the site of the great German victory in the Franco-Prussian War of 1870–71. On hearing this, military aides sympathetic to Manstein connived to arrange a meeting between him and Hitler where his Ardennes plan could be unveiled. As a result, Manstein’s ‘sickle cut’ concept was adopted as the basis for the final version of Fall Gelb (Case Yellow), the German codename for the attack on France and the Low Countries.

OPPOSITE

The strategic situation on the evening of 12 May 1940.



COMBAT

10–11 MAY: MOVEMENT TO CONTACT

Steuer's 4. PzDiv was the spearhead of Hoepner's XVI. Armeekorps (mot.) and pushed into the Netherlands near Maastricht on the morning of 10 May against light resistance. Dutch engineers demolished the River Maas (Meuse) bridges, which delayed the advance by a day as German combat engineers created tactical bridge crossings. PzRgt 35 headed for Tongres via the pontoon bridge at Vroenhoven, and

The first contact between 4. PzDiv and the 3e DLM occurred on the morning of 11 May when deep-reconnaissance detachments of the 12e Cuirassiers came into contact with PzRgt 35 beyond the bridge-crossing sites. This is a Panhard AMD 35 named *La Raillieuse* ('The Joker') of the 12e Cuirassiers that was lost during the fighting along the Cambrai–Bapaume road on 25 May 1940. (NARA)





PzRgt 36 towards Hasselt via the Veldwezelt pontoon bridge. Heavy fighting began on the morning of 11 May when the lead Panzer columns came under Allied air attack as they entered Belgian territory. The first contact with French forces took place that afternoon when a trio of AMD 35 armoured cars from a scout detachment of the 12e Cuirassiers (3e DLM) ran into the lead column from PzRgt 35, claiming to knock out five Panzers; the Germans acknowledged losing one.

The Panzer division's orders continued to change due to the fluidity of the situation. Hoepner wanted the division to head immediately for Gembloux, but at about 1515hrs, 6. Armee instead ordered the division to move to the south towards Liège, with the intention of cutting off the Belgian forces in the city. By 1745hrs, the orders had reverted to the original objective of Gembloux after Heeresgruppe B intervened. The other division in Hoepner's corps, 3. PzDiv, was trailing behind. It was scheduled to cross the Meuse at 1300hrs on 11 May, but was delayed by road congestion and Allied air attacks on the bridge sites. It finally moved over the river in the early evening at about 1830hrs, leaving 4. PzDiv far ahead and exposed. By the end of the day, 4. PzDiv was in Oreye, about 50km from its objective, Gembloux. At 2100hrs, Hoepner gave Stever his immediate objective for the next day: Hannut.

On the French side, Prioux's Corps de cavalerie was activated at 0400hrs on 10 May, and elements of the 2e DLM and 3e DLM began to move towards Belgium by dawn, with armoured cars in the lead to carry out their usual deep-reconnaissance mission. The 3e DLM's reconnaissance element, the 12e Cuirassiers, dispatched three

The partner to the 3e DLM in Prioux's Corps de cavalerie was the 2e DLM, which operated to the south-east. This is a Somua S 35 of the 29e RD, 2e DLM. (Patton Museum)

détachements de découverte (scout detachments) that were to conduct reconnaissance, link up with Belgian defences and challenge any German scout patrols that were encountered. The corps' ultimate objective was the area around Gembloux, the so-called Gembloux Gap, which was located between Brussels and Namur. The corps was within 15km of Gembloux on 10 May, and armoured reconnaissance patrols reached as far north as Maastricht.

Prioux dispatched two officers from the corps headquarters, one to Brussels and one to Liège, to determine the state of the Belgian Army. Their reports greatly alarmed Prioux. A planned anti-tank belt made up of Cointet obstacles was far from complete. The Belgian IIIe Corps d'Armée had very weak defences along the Albert Canal. The Luftwaffe ruled the skies over Belgium. These reports, as well as Prioux's own experiences during the first day's advance into Belgium, had a sobering effect. Allied air cover was almost non-existent and the French columns came under repeated air attack by the Luftwaffe. The German seizure of the Eben Emael fortress at the confluence of the Meuse brought into question the idea of setting up a defensive line on the Albert Canal as had been planned.

Prioux met with Général Gaston Billotte, the commander of the 1er Groupe d'Armées, and suggested that the Allied strategy of pushing deep into Belgium was fundamentally too risky due to the fast pace of the German advance, the poor preparedness of Belgian defences and the danger that the French forces would be caught in the open while moving forward by the Luftwaffe and Panzer columns. Prioux recommended adopting the more modest Escaut Plan, which would have pushed the French and British forces only as far as the River Scheldt (called the Escaut by the French), not all the way to the Dyle. The front commander, Général Alphonse-Joseph Georges, ignored Prioux's advice and ordered the corps to advance more swiftly and to confront the Panzers with 'brutal halting blows'. Billotte had a



The commander of PzRgt 36, Oberst Kurt von Jesser, and his HQ staff observe the progress of his unit from his Panzerbefehlswagen Ausf F on the road from Tongeren to Waremmé at midday on 11 May 1940. The *Befehlspanzer* was easily distinguishable by the added radio antenna on its rear deck. [NARA]



better appreciation of Prioux's predicament and instructed him that his corps would only need to halt the Panzer tide until the morning of 14 May, by which time the bulk of his infantry divisions would have arrived to block the Gembloux Gap.

Prioux ordered the armoured-car patrols to fall back on 11 May, and he established a 35km-wide defensive perimeter north-east of Gembloux, centred on the town of Hannut. The 2e DLM was assigned the right flank from Huy on the Meuse to Hannut, while the 3e DLM held the left flank from Hannut to Tienen (also known as Tirlemont). This frontage was too wide to be defended by only two cavalry divisions, but the intention was only to screen and delay the oncoming German forces until the infantry divisions arrived. The Gembloux Gap consisted mainly of open farmland interspersed with small towns and villages. The usual French cavalry practice was to create strongpoints in the towns with a squadron of dragoons supported by a few Hotchkiss tanks from the regimental squadrons. The farm fields between the strongpoints in most cases could be overwatched from the villages and covered by the dragoons' 25mm anti-tank guns. To prevent Panzer infiltration between the strongpoints, squadrons of Somua S 35 tanks were stationed a few kilometres behind, counter-attacking any penetration past the line of defended towns.

A PzKpfw III of 6./PzRgt 36 moves off the road near Waremmes to advance cross-country during the approach march to Hannut on the afternoon of 11 May 1940. The tanks of PzRgt 36 can be distinguished from those of PzRgt 35 by the small dot after the tactical number. [NARA]

12 MAY: INTO CONTACT

Steuer's 4. PzDiv set out around dawn on Pentecost Sunday, 12 May, and Hoepner ordered the division to send out strong scouting patrols dozens of kilometres beyond the immediate objectives of Jodoigne and Hannut. This proved unrealistic as the lead



German infantry of 4. SchtzBrig inspect one of the Hotchkiss H 39 of a squadron from the 11e RDP. (Author)

German patrol soon began to encounter well-prepared French defences behind Hannut as well as to the south along the River Mehaigne. Eberbach's PzRgt 35 took the lead, with I./PzRgt 35 reaching Jodoigne at about 0730hrs and II./PzRgt 35 approaching Hannut around the same time. A French screening force pulled out of Hannut at about 0800hrs. The lead group of II./PzRgt 35, led by Leutnant Rauschenbach with five PzKpfw I and PzKpfw II light tanks with accompanying motorcycles, was surprised by the sudden charge of two Panhard AMD 35 armoured cars under Sous-lieutenant Paumé of the 12e Cuirassiers. Paumé claimed to have knocked out two of the Panzers in the ensuing skirmish.

With Hannut now in German hands, II./PzRgt 35 sent patrols towards to either side of the town, igniting a series of skirmishes. The strongpoint at Crehen was held by motorcycle troops of the I Bataillon, 11e RDP. A troop of five well-camouflaged Hotchkiss H 39 tanks of the 2/3e Escadron, 2e Cuirassiers led by Sous-lieutenant

Geneste were camouflaged in the foliage near the edge of the village. Around dawn, a civilian on a bicycle appeared at the edge of the village and warned the French troops that a column of friendly Belgian tanks was approaching. It is not clear if this was a deliberate German ruse, or the usual fog of war. In the event, the tanks were spotted by the outlying French positions and identified as German. As the tanks of 5./PzRgt 35 approached the town, they were brought under fire by Geneste's Hotchkiss tanks. In the initial volley, Maréchal de logis Maignant claimed four Panzers. The Panzer crews were shocked to see the 2cm fire from their PzKpfw II cannon bounce harmlessly off the Hotchkiss tanks. As the fighting intensified, the rest of the Hotchkiss squadron moved forward to engage the German force. Hauptmann Ernst Freiherr von Jungenfeld, commander of 6./PzRgt 35, recalled that 'enemy tanks popped up out of every corner ... the situation grew hot, and on occasion the enemy grew so strong that he took the offensive'.

As the fighting for the town continued, the rest of the Hotchkiss tanks of the 3e Escadron, 2e Cuirassiers under Capitaine de Sainte-Marie-Perrin joined the melee,

leading to a three-hour skirmish. At about 0945hrs, PzRgt 35 reported that it had been attacked by 25 French tanks. The situation changed abruptly with the arrival of several PzKpfw III from 8./PzRgt 35, which methodically began to knock out the small French tanks. Most of the French casualties were credited to the PzKpfw III tanks of Oberleutnant Lekschat and Leutnant Euler. The crews of the smaller PzKpfw II tanks realized they had little chance attacking the Hotchkiss tanks frontally, but found that they could be penetrated at close range from the side. Oberleutnant Malguth's PzKpfw II crew were credited with three Hotchkiss. By midday, the village was in German hands and 11 of the original 21 Hotchkiss had been knocked out. Both Geneste and Sainte-Marie-Perrin were killed when their tanks were hit. The ten surviving Hotchkiss tanks broke out of Crehen and withdrew to the north-west, to the other French strongpoint of Thisnes. Jungenfeld's unit had claimed nine Hotchkiss for the loss of five of their own tanks and he recalled 'this was a hard and bitter day for us as well'.

At 0920hrs, 6. Armee ordered Stever to push all the way to Gembloux that day, on the assumption that the Belgians were in continual retreat. Stever had already begun to receive radio reports of intense French resistance around Hannut, and he knew that his lead elements were running out of fuel. He requested an air-drop of fuel, and at about 1230hrs nine aircraft each dropped special rubber fuel containers; a second drop was conducted at 1730hrs, delivering in total some 30,000 litres. The fuel shortage as well as intense French field-artillery fire discouraged 4. PzDiv from any larger action on the afternoon of 12 May.

At 1615hrs, Hoepner visited Stever's forward headquarters. With refuelling complete, he wanted another deep probe of the French defences, which he assessed as 'very weak' after the day's fighting. Stever created a combined-arms battlegroup under Eberbach called Vorausabteilung Eberbach (Forward Detachment Eberbach). This consisted of I./PzRgt 35 and a rifle battalion under Major Popp from SchtzRgt 12, supported by two artillery batteries. Eberbach was instructed to try to reach Perwez, more than 15km behind French lines, but he was warned to be careful and to halt the mission if resistance was too severe. Vorausabteilung Eberbach set out towards Thisnes at dusk, and quickly met heavy French anti-tank fire as well as field-artillery fire. Elements of 4./PzRgt 35 were halted by barricades and defences inside Thisnes, including a Hotchkiss troop under Lieutenant Vie. A Belgian 47mm anti-tank gun located outside the town managed to knock out a few Panzers as they moved down the road before it was itself knocked out by tank fire. A PzKpfw IV was brought forward and began blasting the barricades with its 7.5cm gun. Eberbach set out in his *Befehlspanzer* to confer with Major Popp, but his tank was ambushed by crossfire from three of Vie's Hotchkiss tanks; Eberbach and his crew escaped uninjured.

At about the same time, the 2e/4e Escadron, 2e Cuirassiers sent a patrol of three Hotchkiss tanks into Crehen under Sous-lieutenant Constantin. They reached the town after many of the Panzers had departed with Eberbach. The Hotchkiss platoon was assigned to locate survivors from Saint-Marie-Perrin's Hotchkiss squadron from the morning's fighting. In the meantime, the regimental commander, Colonel Touzet du Vigier, ordered a tank raid to disrupt the German forces near Thisnes and permit the withdrawal of remaining French detachments. At about 1830hrs, two Somua troops from Capitaine de Beaufort's 1er Escadron, 2e Cuirassiers headed out from

The commander of SchtzRgt 33, Oberst Gustav Fehn (left), gives instructions to one of his company commanders, Hauptmann Ulrich, at about noon on 12 March during the fighting near Waremme to the east of Hannut. Fehn was later appointed acting commander of the Deutsches Afrikakorps in November 1942 and served as one of its last leaders until wounded on 15 January 1943. After his recovery in the summer of 1943 he commanded LXXXVI. Panzerkorps on the Eastern Front. [NARA]



Merdorp towards Crehen and Hannut. The appearance of these tanks was an unpleasant shock to the Panzer crews. While the small Hotchkiss tanks were vulnerable to 3.7cm gun fire from the PzKpfw III, the Somua was largely invulnerable from the front. Furthermore, its 47mm gun was far more effective against the German tanks than the puny 37mm SA 18 on the Hotchkiss. Four Somua tanks were lost during the sortie, two to accidents, but the chaos caused by their arrival permitted the French dragoons under Capitaine Portel to pull back from Thisnes to Merdorp, along with the surviving Hotchkiss tanks.

While the Somua troop under Sous-lieutenant Pelissier was fighting in Thisnes, de Beaufort instructed the other troop, under Sous-lieutenant Lotsitsky, to push on to Crehen to support Constantin's rescue mission. Once this was accomplished, the Somuas passed through the town in the dark, shot up two German trucks, and boldly headed out towards Hannut. The troop came under heavy German anti-tank fire, but managed to shoot up four Panzers and several trucks before withdrawing.

Eberbach's battlegroup continued its efforts to push past the French strongpoints in the dark. With a Panzer company still skirmishing with French forces outside Thisnes, 3./PzRgt 35 tried to skirt around the town, but was hit by fire from the French strongpoint in neighbouring Wansin. The French detachment called in artillery support from the 76e RA. Eberbach's force switched its focus to Wansin. The French detachment repulsed these attacks, but suffered enough casualties that it was ordered to withdraw to Jandrain-Jandrenouille (hereafter called Jandrain for clarity).

As night fell, Eberbach ordered the Panzers to return from their exposed positions. After the French abandoned Thisnes, the rifle companies of I./SchtzRgt 12 were left to secure the village at about 0200hrs. Eberbach radioed back to the divisional headquarters explaining that he decided to disengage because 'It is important that the units used today are able to fight again tomorrow'. From the evening's fighting, Eberbach estimated that they were facing elements of two French DLM, one

immediately in front and the other behind the River Mehaigne to the south. Jungenfeld recalled the day's fighting in his memoirs as 'hard and bloody; many a brave *Panzermann* had to lay down his life for the Fatherland. Many were wounded and a large number of tanks were lost, in part to enemy fire and in part to breakdowns.' French losses were heavy as well, including 11 Hotchkiss at Crehen and 13 at Thisnes, along with four Somuas.

Hoepner's corps had made little progress on 12 May, in part due to 4. PzDiv's preliminary skirmishes with the 3e DLM strongpoints, as well as the slow arrival of its partner, 3. PzDiv. The situation was so aggravating that in the early afternoon, the 6. Armee commander, Generaloberst von Reichenau, visited 3. PzDiv headquarters to prod the division's commander Generalmajor Stumpf into taking more vigorous action to get his columns moving to the front. The delays were caused by a combination of traffic congestion and Allied air attacks on the Meuse bridges. The lead elements of PzRgt 6 reached the Hannut area at about 1800hrs, with the rest of the division following; 3. PzDiv took up station on the right flank of 4. PzDiv to its immediate north. As a result of its arrival, Hoepner had great hopes for actions the following day with both Panzer divisions ready to attack. Again, the objective was Gembloux.

13 MAY: INITIAL SKIRMISHES

Général de division Gabriel Bougrain's 2e DLM had seen little fighting on 12 May, and he was champing at the bit to join the battle. Prioux refused to allow any large shift of the 2e DLM towards Hannut due to concern that their defensive line would soon be challenged by the advance of the German infantry divisions from the Liège area. Bougrain proposed the idea of a tank raid towards Thisnes to disrupt German preparation. Around dawn, the 2e DLM sent about 30 Somua tanks under

Following the first encounters with the heavily armoured French tanks on 12 May, 4. PzDiv moved its 8.8cm Flak guns forward near Crehen to help provide anti-tank firepower for the next day's fighting. (NARA)





The basic vehicle of the *Schützen-Regiment* was the Kfz 70 *Mannschaftkraftwagen*, better known by its commercial name as the Krupp L2H143. Its usual complement was a driver plus eight riflemen, and an infantry section required two trucks. (NARA)

Capitaine de Villèle of the 13e RDP across the Meuse near the boundary between the 2e and 3e DLM. After knocking out a number of Panzers, this raid was halted by intense German fire from Crehen, including several 8.8cm Flak guns that had been brought up after the previous day's demonstration of the weakness of the Panzers against the heavy armour on French tanks. German infantry from 269. InfDiv had pushed beyond Liège the previous day and started to infiltrate the 2e DLM strongpoints on the northern side of the Meuse near Huy. As a result, Bougrain began committing some of his tank reserves towards Huy to block any further infiltration. The German infantry tied down the 2e DLM for most of the day, allowing Hoepner to concentrate both of his Panzer divisions against the 3e DLM.

The German attack beyond Hannut on 13 May started late. By dawn, 4. PzDiv was still trying to regroup after Eberbach's raid was rebuffed late the previous evening. In addition, the division was still attempting to refuel and rearm, a process complicated by the road congestion from the Meuse to the forward battle area. After the previous day's intense fighting near Hannut, Hoepner wanted to soften up French positions with airstrikes. VIII. Fliegerkorps would not be ready to strike until 1100hrs, which further delayed the start of the attack. The commander of the fresh 3. PzDiv, Generalmajor Stumpf, planned to attack with both of its Panzer regiments in the lead, followed by a rifle battalion behind each regiment, and the third in reserve. In contrast,

Steuer's plan for 4. PzDiv was to lead with the riflemen of SchtzRgt 12, and once the forward French defences in Thisnes, Crehen and Merdorp were secure, the Panzer regiments would pass through the gaps for exploitation. In total, Hoepner's XVI. Armeekorps (mot.) had about 560 tanks available at the start of the day's attack.

The first large tank advance began along the Petite Gette stream in 3. PzDiv's sector at about 1120hrs, with PzRgt 5 on the right heading towards Marilles and PzRgt 6 on the left moving towards Orp-le-Grand. The French had destroyed many of the larger bridges in the sector, and the 2e Escadron, 11e RDP had a strongpoint overlooking the remaining bridge near Martet, including a troop of Hotchkiss from a regimental squadron. This led to a diversion of I./PzRgt 5 across the route of advance of PzRgt 6 to find an undefended path over the river south of Orp-le-Grand. II./PzRgt 5 tried to push into Marilles at about 1415hrs but was temporarily pushed out by a troop of six Hotchkiss of the 1er Cuirassiers. The 1er Cuirassiers sent a further two troops of Somuas to attack the German columns on either side of Marilles, and by mid-afternoon there were 25 burning tanks, mainly German, in the fields east of Marilles.

PzRgt 6 passed through the undefended Orp-le-Grand and confronted the 6e Escadron, 11e RDP in neighbouring Orp-le-Petit. Bitter street fighting erupted in the town. The attack was spearheaded by a pair of PzKpfw IV, the preferred tank for these engagements since its HE fire was better suited to destroying street barricades and other obstructions. Once clear of Orp-le-Petit, Hoepner ordered PzRgt 6 to turn south towards the open farm fields near Jandrain and Jandrenouille. The Petit Gette stream meandered through this area, and the soft ground on the banks proved to be a hazard for the Panzers. Major Schmidt-Ort of I./PzRgt 6 sent out a scout party to find other river-crossing points. A small bridge was located, but it seemed too feeble to carry tanks except for the PzKpfw I and PzKpfw II. As a result, two light-tank companies set out for the objectives of Jandrain and Jandrenouille while the heavier tanks remained behind awaiting engineer support to erect some tactical bridging.

Jandrain was held by the dragoons of 3e Escadron, 11e RDP as well as personnel from other squadrons of units decimated in the previous fighting near Orp-le-Petit. The dragoons were supported by a squadron of Hotchkiss. The attack on Jandrain started with an artillery barrage, followed by a wave of PzKpfw I and PzKpfw II light tanks. The Hotchkiss with the short 37mm gun had some capability against light tanks, but quickly expended most of their ammunition. The H 39 of Sous-lieutenant Le Bel was one of the few with the new 37mm SA 38 gun; it knocked out one Panzer and disabled five more, expending 100 rounds in the process. The town was eventually encircled by infantry from SchtzRgt 12.

13 MAY: 4. PzDiv ATTACKS

4. PzDiv began its attack on 13 May with the initial objectives of securing Merdorp, Crehen and Thisnes. The Germans had not realized that the French had abandoned the two latter towns the night before. The division's tactics were different from those employed by 3. PzDiv, spearheading the attack with infantry. The German rifle troops marched through Thisnes at about 1100hrs unopposed. However, the infantry



The crew of a 3.7cm PaK 36 anti-tank gun of PzJgAbt 49 keep a wary look-out for French tanks during the fighting in the field near Merdorp on the afternoon of 13 May 1940. A second gun from the battery can be seen in the distance. The battalion's dangerous contacts with Somua tanks during the fighting that day led the unit commander, Major Wedra, to pen a critical warning to division and corps commanders about the armour of the Somua tank. (NARA)

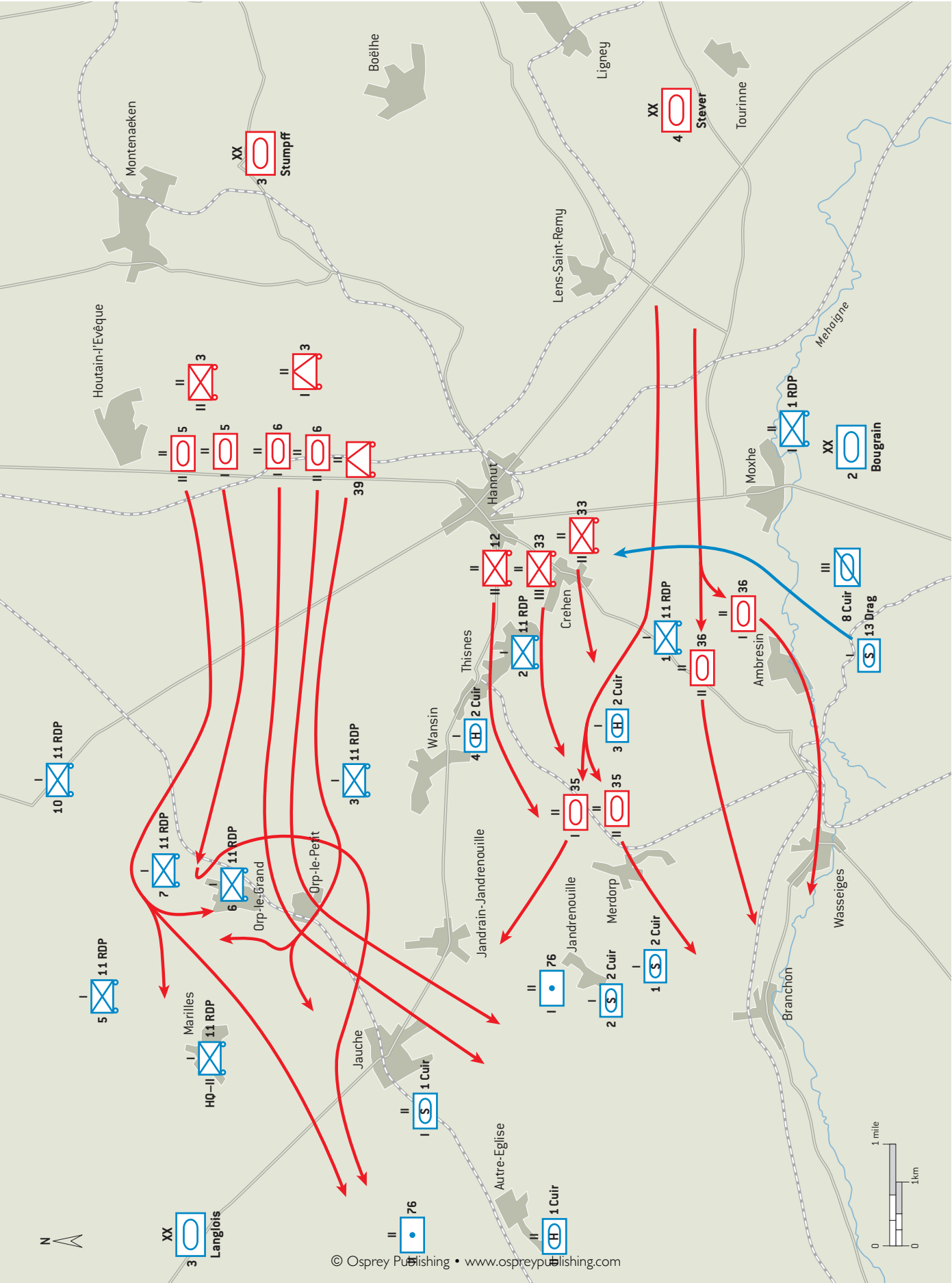
advance was relatively slow, and so the Panzers took the lead in the early afternoon. The main defences in Merdorp consisted of the Somuas of Capitaine de Beaufort's 1er Escadron, 2e Cuirassiers plus survivors from Lieutenant Vie's battered 4e Escadron of Hotchkiss, supported by two sections of 47mm anti-tank guns from the divisional battery. Capitaine Hardouin's 2e Escadron, 2e Cuirassiers held the neighbouring strongpoint at Jandrenouille. PzRgt 36 approached Merdorp from the south, while PzRgt 35 approached from the north in the fields between Merdorp and Jandrenouille. Following a preliminary artillery barrage at 1100hrs and a Stuka attack, the German tanks began advancing towards Merdorp at about 1300hrs. The Somuas began to engage the Panzers from prepared positions around the town. Recognizing that they could not engage the thickly armoured Somuas, the light Panzers passed around the town and headed beyond it towards their main objective, Branchon.

Based on the previous day's fighting, 4. PzDiv was well aware of the difficulty of dealing with the French tanks, and so brought forward the division's 8.8cm Flak guns and PzKpfw IV tanks. The 8.8cm guns remained at stand-off range and attempted to engage any Somua that could be spotted near the town. The PzKpfw IV tanks accompanied the infantry towards the town. Two Somuas were quickly knocked out by 8.8cm fire, and Capitaine de Beaufort pulled the Somuas back from the edge of the town where they were too vulnerable to long-range fire. German infantry from III./SchtrZrgt 33 penetrated into the settlement but were halted by tank fire when they reached the centre of town. With no Allied infantry, Capitaine de Beaufort realized he could not hold the town against a battalion of enemy riflemen, and at about 1340hrs, he ordered his forces to withdraw north into neighbouring Jandrenouille under the covering fire of the 2e Escadron, 2e Cuirassiers. During the fighting for Merdorp, the 1er Escadron, 2e Cuirassiers lost six Somuas.

This led to a sharp fight for Jandrenouille during much of the afternoon. The village was attacked by two infantry battalions, II./SchtrZrgt 12 and III./SchtrZrgt 33,

OPPOSITE

The battle of Hannut–Merdorp, 13 May 1940.





A Somua S 35, tactical number 65, of the 1er Escadron, 2e Cuirassiers knocked out during the fighting near Merdorp on 13 May 1940 by a large-calibre hit, probably from a PzKpfw IV, on the left side of the engine compartment. [Patton Museum]

who were counter-attacked by the Hotchkiss troops. The French defences held until the middle of the afternoon when the division ordered them to pull back due to the penetrations by 3. PzDiv immediately to the north. A rearguard of Somuas covered the withdrawal, engaging in further firefights with II./PzRgt 35.

The village of Jandrain was located between the advance routes of 3. PzDiv from the north and 4. PzDiv from the south. The town was held by dragoons of the I Bataillon, 11e RDP supported by a troop of Hotchkiss. In addition, the I Bataillon, 1er Cuirassiers, equipped with Somua tanks, was stationed in reserve to the west near Jauche. Plans to counter-attack the German spearheads at about 1300hrs were foiled due to the heavy fire from 3e DLM's artillery against the advancing Germans. At 1340hrs, two troops totalling 14 Somua headed out from Jauche. Not encountering any Panzers, they took up positions in Jandrain, mainly around the village water tower, which was located on a hill on the south side of the town overlooking the fields towards Jandrenouille. The tanks of Hauptmann von Jungenfeld's 6./PzRgt 35 began their attack on Jandrain, using the water tower as an objective. The Panzers were hit by fire from Jandrain and Jandrenouille, and French artillery observers on the water tower were able to direct fire against the Panzers. Jungenfeld later described the advance as 'devilishly difficult', while Eberbach called the ground between the two towns a 'witches' cauldron'. To make matters worse, the Panzers were low on ammunition after the early-afternoon fighting, and some of the light tanks broke off to return to the rear areas to secure more 3.7cm and 7.5cm ammunition for the essential PzKpfw III and PzKpfw IV tanks.

At about 1430hrs, the French defenders in Jandrain were ordered to fall back west to Jauche since it was threatened with encirclement by the advance of 3. PzDiv from



the north. Not all the troops got the word, and a Hotchkiss tank went back into the town at about 1545hrs and repeated the retreat order before leading a column of five Hotchkiss out of the town for Jauche. The withdrawing French columns were spotted by PzJgAbt 39 of 3. PzDiv to the north of the town, which began firing at them for the better part of an hour: 'a few French Somua tanks pulled back on the road to Jauche. Every single one of these moving tanks was fired upon by Panzer-Regiment 6 and our anti-tank company, so every tank took a large number of hits, including 75mm high explosive rounds. None of the French tanks was penetrated or put out of action.'

Actually, one of the Somuas was badly enough damaged that it had to be scuttled in Jauche. Some idea of the intensity of the fire can be determined from Sous-lieutenant Robert Le Bel's H 39, which had been hit by 15 anti-tank rounds and 42 machine-gun rounds by the time it reached Jauche. The withdrawal of the strongpoints at Jandrain and Jandrenouille in the mid-afternoon led to a confusing series of tank battles in the neighbouring fields, with the Somuas of the 2e Cuirassiers tangling with elements of PzRgt 35. Fighting between the remaining dragoons and German infantry continued through the late afternoon, with the survivors of the I Bataillon, 11e RDP surrendering at about 1800hrs to 3./PzRgt 35. PzBrig 5 set up its headquarters near the Jandrain water tower that evening. The fighting petered out late in the day with both sides low on ammunition and fuel.

13/14 MAY: THE 3e DLM DISENGAGES

By the mid-afternoon of 13 May, the 3e DLM had exhausted its reserves. Général de division Langlois was aware of the corps' mission to hold the line until the morning of 14 May, and felt it prudent to begin to withdraw his battered division before it was too exhausted and entangled to do so. The situation was most dire with the dragoons. The 11e RDP had been reduced in strength from a regiment to a battalion. Langlois

On 13 May, 6./PzRgt 35 is shown advancing east of Braives during the fighting. The PzKpfw III on the left is the tank of the company commander, Hauptmann Ernst Freiherr von Jungenfeld, with his nickname, 'Pampas', painted on the turret rear for identification. Jungenfeld served in the Kaiser's imperial guard in World War I and saw combat during the Gallipoli campaign. Known in Germany for a set of reminiscences of his adventures as a young man in South America, he was relatively old for a tank commander, 47 in 1940, and he was affectionately known as 'Unser Pampas' in his company after his exploits in Paraguay. Jungenfeld later served as acting commander of PzRgt 35 in June 1940 after Major Scholthane was injured. He took part in the invasion of Soviet Union in 1941, and in July 1942 he was given command of the anti-tank battalion of 4. PzDiv, PzJgAbt 49. In May 1943, he was assigned to lead the new schwere Panzerjäger-Regiment 656, which was based around a cadre from his former II./PzRgt 35. This unit had two battalions of the new Ferdinand 8.8cm self-propelled gun and a battalion of Sturmpanzer IV. The regiment took part in the battle of Kursk in the summer of 1943. In the summer of 1944, Jungenfeld served with the German military mission to Bulgaria, overseeing the transfer of tanks to this erstwhile ally. He led a hastily formed tank unit in the final battles around Berlin in 1945. [NARA]





PREVIOUS PAGES

On the afternoon of 13 May, PzRgt 35 pushed past the town of Merdorp in an effort to reach the objective of Gembloux. As they advanced across the open farm fields, they aimed for the prominent water tower on the road outside Jandrain as one of the few recognizable terrain features. They were confronted by the two Somua squadrons of the 2e Cuirassiers, some of which were clustered near the water tower. The PzKpfw III Ausf F in the foreground is the tank of the commander of 6./PzRgt 35, Hauptmann Ernst Freiherr von Jungenfeld. The Panzers came under intense fire from the Somua tanks and the French artillery. The 75mm guns of the I Bataillon, 76e RA were in the fields to the immediate west of the German attack, and had a pair of observers on top of the water tower. While 2./PzRgt 35 headed directly for the water tower, 5./PzRgt 35 together with 6./PzRgt 35 attempted to deal with the numerous Somua tanks. During the fighting, Jungenfeld's PzKpfw III knocked out a number of French tanks, but later in the day he was ambushed by one that was camouflaged in a ditch. Jungenfeld was riding with his head outside the tank when he spotted the Somua. He leapt down inside the tank and directed the crew to swing the turret. The first hit by the Somua failed to penetrate, and to his shock, Jungenfeld discovered that his 3.7cm gun had jammed. The PzKpfw III was struck two more times, one round injuring the radio operator and the other setting fire to the fuel tank. The crew abandoned the tank. A neighbouring tank commanded by Leutnant Wollschlager attempted to recover Jungenfeld's crew, but was itself knocked out. The company's other tanks finally rallied and managed to knock out the Somua.

spoke with Prioux in the afternoon, and agreed to withdraw back to the Belgian anti-tank barrier near Perwez, starting at 1530hrs. The 1re Armée dispatched the 4e GRDI, the divisional mechanized cavalry of the 15e DIM (the first of the new French motorized infantry divisions), to hold the intermediate positions around Mont Saint-André and Grand Rosière. The 3e DLM withdrew most of its forces back to the line of Cointet anti-tank obstacles around Perwez by 2000hrs. The neighbouring 2e DLM, which was not threatened by Hoepner's Panzer force, decided to remain in place through the night and withdrew to the Belgian anti-tank line on the morning of 14 May. By this time, the 1re Armée had moved up to the Gembloux Gap, and had begun to deploy the infantry divisions of the IVe Corps d'Armée.

The Belgian anti-tank barrier near Perwez proved to be a major disappointment to the French. The barrier was far from complete, and the special gates that allowed passage through the sections of Cointet obstacles had been left open. The divisional engineers of the 3e DLM attempted to close the barriers, but this was difficult to do in the dark without specialized tools.





During the night of 13/14 May, Hoepner's headquarters believed that the French defences had been overcome and that the next day would finally start the exploitation phase of the campaign with deep advances to the French frontier. In spite of the Luftwaffe's command of the air, there was little appreciation that the French were establishing their main defence line in the Gembloux Gap and that the Germans had simply pushed back the cavalry screening force. In the early hours of 14 May, both Panzer divisions were instructed to push through the French defences, starting with the anti-tank barrier at Perwez.

At about 0800hrs on 14 May, 4. PzDiv reached the line of Cointet obstacles and found the barrier to be largely unprotected. German combat engineers attempted to open up gaps sufficient for tank passage. Once a gap was created at about 0830hrs, PzRgt 35 began to move through in single file. PzRgt 36 ran into rearguards of the 2e DLM around Grand Leez, and so broke off the engagement and followed behind PzRgt 35 through the cleared gap. 3. PzDiv was delayed in its advance by false reports of a French tank counter-attack and finally followed up 4. PzDiv through the breaches in the Cointet obstacles near Perwez.

By the afternoon, the divisional spearheads had been stopped by French defensive strongpoints on either side of the town of Gembloux, and by unexpectedly heavy artillery fire. In the early evening, 3. PzDiv was counter-attacked by Somua squadrons

A PzKpfw III of I./PzRgt 35 passes through a narrow gap in an anti-tank wall during the fighting. [NARA]

OPPOSITE

The Belgian anti-tank barrier near Perwez consisted of an interlinked chain of steel Cointet obstacles. The Wehrmacht later re-used these on the Atlantic Wall, and they became known in Normandy as 'Belgian Gates' or 'C-Elements'. This barrier was erected outside the fortified port of Brest in France and is seen here in September 1944. [NARA]



A pair of Somua S 35 tanks of the 13e RD abandoned near an irrigation ditch in a farm field. The 2e DLM held the southern sector of the cavalry screen in the Gembloux Gap and was mainly involved in holding back the advance of German infantry divisions on 12–14 May. (Tom Laemlein/Armor Plate Press)

of the 3e DLM around Walhain and a series of sharp tank skirmishes ensued. PzRgt 6 managed to infiltrate into a gap between two battalions of the 1er DM (*division marocaine*, or Moroccan division) near Ernage, but this was halted by a counter-attack of the 2e RM (*régiment marocains*, or Moroccan regiment) supported by Renault R 35 tanks of the 36e BCC. Prioux's Corps de cavalerie was officially instructed to pull back behind the French infantry defences at 1500hrs, though the divisional artillery remained on the line as reinforcement for the infantry divisions.

15 MAY: THE BATTLE OF GEMBLoux

The fighting over the next few days was now in the hands of the French infantry, supported mainly by Renault R 35 tanks of the infantry tank battalions. Heeresgruppe B was insistent that Hoepner's corps push through the 'defeated enemy' and failed to appreciate that the French had established a dense infantry defence around Gembloux. Pressured into attacking on 15 May before supporting German infantry divisions could arrive, Panzer divisions found that their attacks that day were a complete failure.

4. PzDiv based its attack on PzBrig 5 with both of its Panzer regiments. The brigade commander, Oberst Breith, led the attack in his *Befehlspanzer* against the 1er DM near Gembloux, but his tank was knocked out; a light tank sent to rescue him was also knocked out. Later in the afternoon, Hauptmann von Jungenfeld sent a third tank,

but it was hit four times in rapid succession and finally withdrew. Breith spent several hours playing dead in a shell hole under artillery fire 'more intense than ever seen in the Great War'. Besides their highly effective 25mm anti-tank guns, the French had moved up some of their 75mm field guns in an improvised anti-tank role. Eberbach, leading PzRgt 35, had another tank knocked out from under him during the fighting. Around noon, when PzRgt 35 was ordered to attack again, Eberbach refused, having lost half of his tanks in the previous fighting. His crews were exhausted from three days of continual combat, and many tanks were low on ammunition. By 1300hrs, the infantry regiments of 4. SchtzBrig had endured enough and pulled back.

The attack by 3. PzDiv placed the burden on its fresh rifle regiments. Their attack was partly against the left flank of the 1er DM and partly against the 1er DIM. Stumpf's riflemen had no more success than their neighbours to the south, with the rifle regiments being stopped cold by the French infantry bolstered by intense and lethal artillery support. There was at least one tank skirmish late in the afternoon when a detachment from PzRgt 6 tried to stop a Moroccan counter-attack that was supported by Renault R 35 tanks of the 35e BCC, losing four Panzers in the process.

By the end of 15 May, Hoepner's Panzer divisions were exhausted. 3. PzDiv had 20–25 per cent of its tanks knocked out or in repair; 4. PzDiv was in rougher shape, with 45–50 per cent unfit for operation and only 137 tanks functional by the day's end. The rifle regiments were in especially bad condition, and SchtzRgt 12 of 4. PzDiv had lost a third of its officers. One of its battalions, I./SchtzRgt 12, was down to four officers and 31 men from an initial strength of 700. The divisional surgeon recalled in his diary that the fighting for Gembloux on 15 May had been a 'very black day'. 4. PzDiv was so beaten up from the four days of fighting that Hoepner informed Stever that the division would not be expected to take part in another major attack scheduled for 17 May. On the French side, the 1e DM had borne the brunt of the attacks by the two Panzer divisions and had suffered nearly 2,000 casualties, or about a quarter of its strength.

A Somua S 35, tactical number 59, commanded by Maréchal de logis Tribout of the 1er Escadron, 2e Cuirassiers during the fighting on 13 May 1940. It was knocked out in the fields between Merdorp and the water tower. (NARA)





German infantry inspect a Soma S 35 of the 1er Cuirassiers, left behind after the fighting for Hannut–Merdorp. (Tom Laemlein/Armor Plate Press)

6. Armee appreciated the difficulties being faced both by Hoepner's motorized corps and the neighbouring German infantry corps. Plans to continue the attack on 16 May were dropped in favour of an army-wide attack on 17 May. In the event, this attack never took place. The French 1re Armée was forced to pull back, not because of the threat from 6. Armee, but due to the success of Manstein's bold 'sickle cut' manoeuvre through the Ardennes behind them to the south. With the bulk of the Panzer divisions streaming across the River Meuse near Sedan, the 1re Armée was obliged to withdraw, fighting a bloody two-week rearguard action that ended at Dunkirk.

STATISTICS AND ANALYSIS

COMPARATIVE LOSSES

The two days of fighting on 12–13 May caused severe losses in the 3e DLM. Hotchkiss losses amounted to 68 of the initial 155 tanks, while Somua losses were 37 of the original 95. French tank losses tended to be heavier than German losses, since they left the battlefield to the Germans and so could not recover damaged tanks. In spite of their losses, the organization of the French DLM proved sound, even in the inadequately trained 3e DLM. Some organizational features proved more suited to the modern battlefield, particularly the better integration of tanks into the *dragons portés* units compared to the German *Schützen-Regimenter*. By including three tank squadrons in the regiment, the dragoon units could form combined-arms teams offering a good balance of dismounted infantry with immediate tank support. In contrast, the German preference for clustering the motorized infantry and tanks in their own brigades hindered combined-arms tactics at the small-unit level.

4. PzDiv's war diary has detailed figures on troop losses at significant points through the campaign, which helps to provide an image of the scale of fighting in the Gembloux Gap battles. As can be seen, the large tank battles on 12–13 May did not result in especially heavy casualties. On the other hand, the commitment of the division's two infantry regiments at Gembloux on 15 May resulted in the heaviest single day's losses for the campaign, amounting to more than a quarter of overall casualties.

4. PzDiv casualties in the 1940 French campaign					
Date	Engagement	KIA	WIA	MIA	Total
10 May	Leap over the Albert Canal	18	55	6	79
11 May	Penetration of Belgian Albert Canal defences	32	110	7	149
12 May	Initial fighting at Hannut	13	38	10	61
13 May	Hannut–Merdorp tank battles	23	66	3	92
14 May	Approaching the Dyle Line	13	71	0	84
15 May	Battle of Gembloux	105	413	29	547
16–19 May	Advance over Brussels–Charleroi Canal	20	90	5	115
20–22 May	Fight for the Mormal Woods	46	117	8	171
25–28 May	Advance towards Armentières	75	228	3	306
5–6 June	Péronne bridgehead	68	260	5	333
12–25 June	Final fighting	24	83	5	112
Total		437	1,531	81	2,049

German tank losses during the various phases of the French campaign are not so well recorded. Although there are figures at various points during the campaign in the various war diaries, specific data on the fighting around Hannut on 12–13 May is lacking. Both divisions started the campaign with a total of 674 tanks, and about 560 were ready for action on 13 May, suggesting that over 110 tanks were lost or under repair after the initial fighting on 10–12 May. French accounts claim that 164 Panzers were knocked out on 12–13 May. German data for the Panzer divisions on 16 May indicate that 3. PzDiv had suffered total losses of 20 tanks and 4. PzDiv had lost 29. However, the number of temporary tank losses, including those knocked out, bogged down or otherwise unfit for service was much higher. By 15 May, 4. PzDiv had about 160 temporary tank losses. The Germans controlled the battlefield after the fighting, and damaged or bogged tanks could be recovered and repaired. In contrast, French tanks that broke down or suffered minor battle damage were abandoned and permanently lost.

One of the reasons for the relatively high number of temporary combat losses in the Panzer divisions was the weak anti-tank performance of the French 37mm SA 18 that was the predominant weapon of the cavalry's H 39 tanks. At a range of 400m this gun could penetrate only 18mm of armour sloped at 30 degrees. As a result, it was only marginally effective against German light tanks at typical engagement ranges. French Hotchkiss crews soon learned to fire at the tracks or suspension in the hopes of getting a mobility kill, followed by multiple rounds directed against the hull and turret in hopes of getting a lucky hit. In many cases, the 37mm gun would cause spill damage to German tanks even if it failed to penetrate. This could injure and

incapacitate some of the crew members, and in the case of the two-man light tanks, crews would abandon their tanks to take care of injured crew since the tank could not be operated by a single crewman. Even when penetration occurred, the projectile in many cases had lost so much energy that it caused little mechanical damage after entering the fighting compartment, even if it caused further crew injuries as it careened around inside. Tank guns of the 1940 period were not especially powerful compared to later in the war, and catastrophic ammunition fires appear to have been far less common in 1940.

Both Panzer divisions suffered significant losses in the subsequent battle for the Gembloux Gap, although as mentioned before, the burden of the losses fell on the division's infantry. As of 25 May, total tank losses were 42 in 3. PzDiv and 51 in 4. PzDiv. By 30 May, total losses in 4. PzDiv had risen to 64. The figures in the chart below summarize the status of both divisions following the heaviest fighting. Casualties in the final weeks of the campaign were modest. In the case of 4. PzDiv, total losses on 8 June were listed as 77, but the total increased to 86 in the final report on 9 July.

Panzer status on 8 June 1940							
	PzKpfw I	PzKpfw II	PzKpfw III	PzKpfw IV	<i>kleiner Befehlspanzer</i>	<i>grosser Befehlspanzer</i>	Total
3. PzDiv							
Deployed on 10 May	117	129	42	26	19	10	343
Total losses	31	29	10	6	1	5	82
Under repair	28	32	6	4	7	2	79
Operational on 8 June	58	68	26	16	11	3	182
Per cent operational	50	53	62	62	58	30	53
4. PzDiv							
Deployed on 10 May	141	111	40	24	6	9	331
Total losses	33	23	8	8	3	2	77
Under repair	34	25	6	1	0	1	67
Operational on 8 June	74	63	26	15	3	6	187
Per cent operational	52	57	65	63	50	67	56

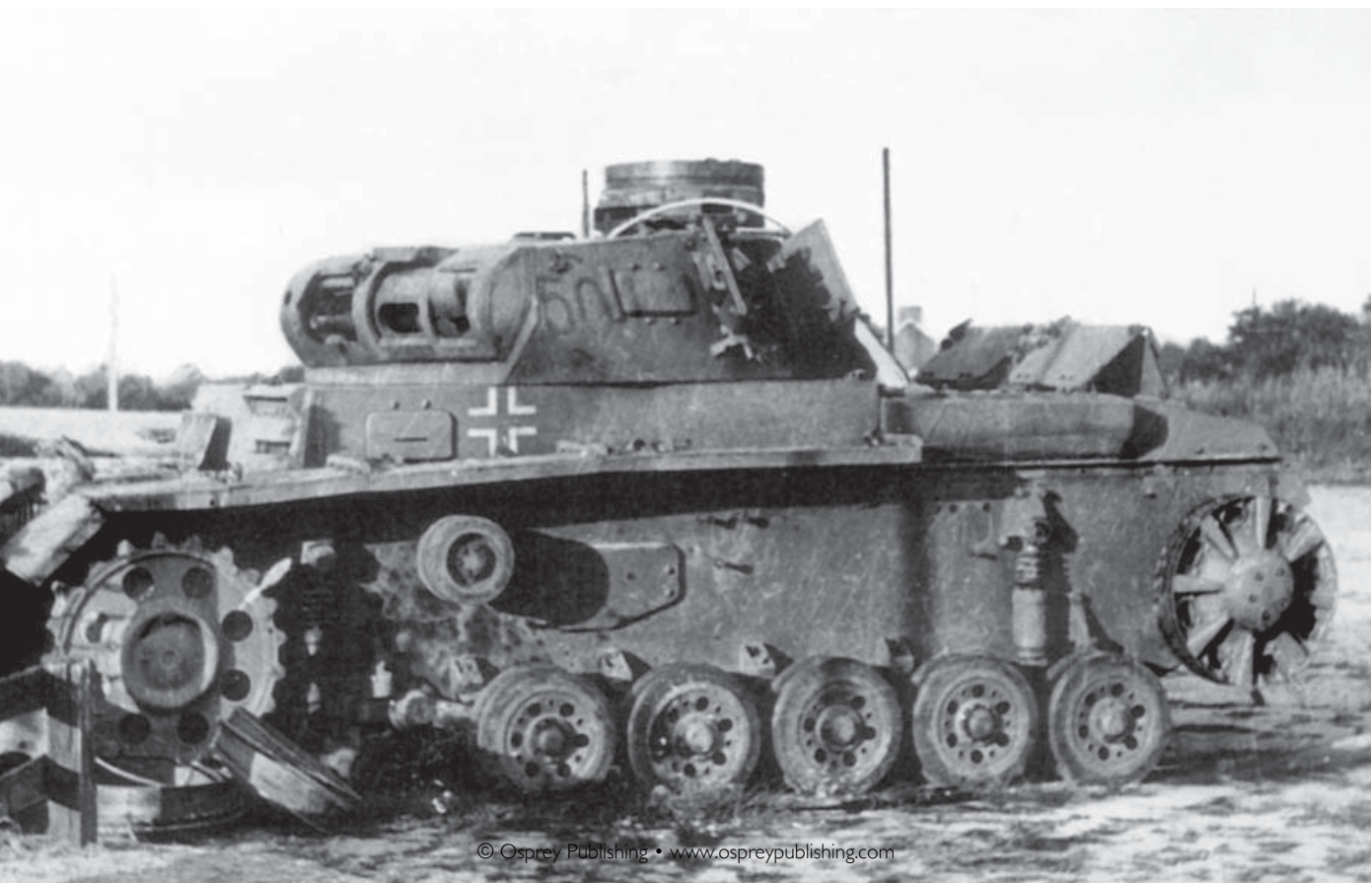
COMPARATIVE TANK PERFORMANCE

In terms of combat performance, both the Somua S 35 and the PzKpfw III were found deficient in tank-versus-tank fighting in the 1940 campaign. The German reliance on the 3.7cm gun for the main armament of the PzKpfw III was a mistake both in terms of anti-tank performance and general fire support. The Heer had selected the 3.7cm gun before the start of the arms race in the mid-1930s, and not surprisingly, both the French and British armies designed their tanks to resist this weapon at typical battle ranges. The PzKpfw III had little hope of surviving a face-to-face confrontation with

a Somua S 35 at normal battle ranges, and only had a chance of succeeding with a side-shot at close range. Likewise, the armour protection of the PzKpfw III was seriously deficient when facing modern anti-tank weapons such as the French 25mm and 47mm anti-tank guns, and the British 2-pdr. The next step forward for the PzKpfw III, the short 5cm gun, was also deficient by the time it entered combat in 1941 in the Soviet Union when confronting the new T-34 tank. Both PzKpfw III weapons were selected prior to 1939 at a point in time where there was some question whether tank-versus-tank fighting would be widespread on the modern battlefield. The Heer showed little appreciation for future threats and made poor choices. The Panzer divisions prevailed on the 1940 battlefield due to better training rather than better technology.

Besides the complaints about the basic PzKpfw III tank, 4. PzDiv was especially critical of the *Befehlspanzer* because of its lack of a gun. During the four days of fighting, 12–15 May, the brigade commander, one regimental commander and at least one battalion commander had their command tanks knocked out. At least two other command tanks (Eberbach's second tank and Jungenfeld's tank) were also lost, though one or both were normal gun tanks. The German battalion and regimental commanders tended to lead from the front, and the use of an unarmed radio vehicle was poorly suited to such a command style. While early radio networks may have required such a communication vehicle to link battalion and regimental headquarters to brigade and division, such vehicles would have been better suited for the use of someone on the staff other than the commander. This led to the eventual production of a *Befehlspanzer* on the PzKpfw III chassis with a traversable turret and 5cm gun.

A PzKpfw III of the HQ company of II./PzRgt 35 (4. PzDiv), knocked out near the sugar refinery in Ambresin during the fighting against elements of the 3e DLM on 13 May 1940. (Patton Museum)





The Somua S 35 was the better tank in an individual tank-versus-tank encounter, but had serious problems when evaluated from the perspective of overall unit performance. By the usual criteria of tank performance – protection, mobility and firepower – the Somua S 35 should have been a battlefield champion. But wretched ergonomic design of the turret severely undermined actual battlefield performance. The commander was distracted by his role as both commander and gunner, and he lacked situational awareness due to poor turret design. As French tank commanders remarked in their memoirs, once fighting started, they largely lost control of their units. They were too busy operating their own tanks and lacked sufficient radios. As a result, French tank sections and squadrons could not fight as co-ordinated teams.

A Somua S 35 of the 29e RD, 2e DLM, knocked out during the fighting in 1940. The club insignia on the turret identifies it as a tank of the 4e Peloton (platoon).
[Patton Museum]

CONCLUSION

The German 'sickle cut' manoeuvre trapped the best French and British armoured divisions in Belgium, leading to an eventual retreat towards Dunkirk. This is the scene in Dunkirk a year after the campaign, still littered with the abandoned S 35 tanks of the 18e RD, 1er DLM. [John Prigent]

In the end, both sides claimed victory in the four-day battle for the Gembloux Gap. The French side had certainly won tactical victories at both Hannut and Gembloux. Prioux's Corps de cavalerie had fulfilled its mission of delaying Hoepner's Panzers long enough for the 1re Armée to establish a firm defensive line in the Gembloux Gap. With its mission accomplished, the Corps de cavalerie withdrew in good order.





The defence of Gembloux demonstrated the effectiveness of a prepared infantry defence against Panzer attack.

From the German perspective, the battle for the Gembloux Gap was an operational success. The intention of Heeresgruppe B was to lure the best French and British divisions into Belgium, catching them in a sack once Heeresgruppe A thrust out of the Ardennes. The presence of Hoepner's XVI. Armeekorps (mot.) masked the fact that most of the German Panzer force was elsewhere, and distracted the French high command about the location and timing of the main blow. However, Berlin was not happy about the senior leadership of 4. PzDiv and Generalmajor Stever was demoted to an infantry division command after the French campaign.

As the battles for the Gembloux Gap demonstrated, the 1940 Panzer divisions were not well suited to penetrating a determined defence. This simply repeated the lessons from the 1939 Polish campaign. Where the Panzer divisions proved so valuable was in conducting the fast exploitation after a breakthrough was won. At the tactical level, a good example was the race to Warsaw by 4. PzDiv in 1939. At an operational level, the Panzer divisions were most valuable for rapidly exploiting gaps in enemy defences as was so ably demonstrated by the 'sickle cut' across the Meuse at Sedan in 1940.

A PzKpfw III Ausf F on occupation duty in an unidentified French city at the end of the French campaign. The Ausf F eventually had two small armoured cowls added on the glacis plate to help brake cooling. [MHI]

FURTHER READING

The tank battles of Heeresgruppe B in Belgium in May 1940 have not attracted as much attention as the far more dramatic tank attacks of Heeresgruppe A around Sedan. There is considerable controversy over which side won the world's first tank battle at Hannut–Merdorp. Duelling national interpretations of the controversy can be found in the Freiser and Saint-Martin books listed below; the American historian Jeffrey Gunsberg leans in favour of the French. Aside from the published sources, I consulted the *Kriegstagebuch* (war diary) for PzRgt 35, as well as those for 3. PzDiv, 4. PzDiv and XVI. Armeekorps (mot.), which are located in the microfilm collection at the National Archives and Records Administration II in College Park, Maryland. There is a reasonably good selection of memoirs of participants of the battle, though the Le Bel memoir is difficult to find.

The PzKpfw III has not attracted as much attention as the Panther or Tiger in spite of its central role in the early Blitzkrieg victories. Tom Jentz's multi-volume monographs provide a detailed technical overview, but an analytic study on the interplay of technology and tactics in early Panzer development is still lacking. Although neglected for many decades, there has been a resurgence in interest in French tank development. François Vauvillier has rejuvenated the old *Histoire de Guerre* magazine, which was renamed starting with No. 74 (November–December 2006) as *Guerre, Blindés & Matériel*. It is essential reading for anyone seriously interested in French Army mechanization and the 1940 campaign. Taken together, Pascal Danjou's *Trackstory* and *Focus* monographs on the Somua are the best single source on the history of this tank.

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INDEX

Figures in **bold** refer to illustrations.

ammunition **13**, **16**, **21**, **27**, **29**, **32**, **59**, **62**, **63**, **69**, **73**; armour-piercing (AP) **5**, **24**, **25**; armour-piercing capped (APC) **24**; high-explosive (HE) **4**, **7**, **14**, **23**, **25**, **59**, **63**; stowage bin **31**, **32**
armour **5**, **6**, **7**, **12**, **13**, **14**, **16**, **17**, **18**, **19**, **20**, **21**, **22**, **23**, **27**, **28**, **31**, **32**, **34**, **35**, **38**, **40**, **41**, **43**, **44**, **45**, **47**, **48**, **51**, **52**, **53**, **54**, **57**, **58**, **60**, **72**, **74**, **76**; armoured cowls **16**, **77**; armoured fighting vehicle (AFV) **10**, **24**; gun-mantlet **22**, **23**, **45**
Atelier de Rueil **19**, **20**
Ateliers de construction de Puteaux (Puteaux State Armament Workshop) (APX) **18**, **19**, **30**, **31**; ICE **19**, **30**, **31**; **4** **19**, **31**
autmitrailleuse de combat (cavalry tank) (AMC) **8**, **17**, **18**; AMC **34** **8**, **17**
autmitrailleuse de découverte (deep-reconnaissance armoured car) (AMD) **17**; AMD **35** **24**, **50**, **51**, **54**
autmitrailleuse de reconnaissance (reconnaissance tank) (AMR) **17**; AMR **33** **45**; **35** **45**

Bataillonsführerwagen (BW) **10**, **11**
Beaufort, Capitaine de **38**, **55**, **56**, **60**
Bougrain, Général de division Gabriel **57**, **58**, **61**
Breith, Oberst **43**, **68**, **69**

cavalry **6**, **7**, **12**, **17**, **18**, **19**, **32**, **35**, **37**, **38**, **39**, **40**, **41**, **43**, **44**, **45**, **53**, **66**, **67**, **68**, **72**
Char B1 bis **7**, **9**, **31**
chassis **8**, **11**, **14**, **16**, **18**, **19**, **20**, **35**, **74**
Cointer anti-tank obstacles **52**, **66**, **67**
combined arms: battlegroup **55**; *Centre d'études tactiques interarmes* (Combined-Arms Tactical Studies Centre) **37**; division **40**; force **44**; tactics **40**, **41**, **42**, **71**; teams **71**
Crehen **54**, **55**, **56**, **57**, **58**, **59**, **61**
cupola **9**, **12**, **19**, **27**, **28**, **29**, **30**, **31**

Daimler-Benz **8**, **11**, **14**, **16**
driver **20**, **23**, **27**, **28**, **31**, **32**, **38**, **40**, **58**
Du Vigier, Jean Touzet **35**, **37**, **44**

Eberbach, Oberstleutnant Heinrich **34**, **36**, **37**, **43**, **54**, **55**, **56**, **58**, **62**, **69**, **74**
episcopo **32**, **33**; PPL RX **160** **31**, **32**

French Army **6**, **8**, **17**, **18**, **34**, **35**, **36**, **37**, **78**
armies: Ire Armée **66**, **70**, **76**
corps: IVe Corps d'Armée **9**, **66**; Corps de cavalerie **47**, **51**, **68**, **76**
divisions: 1er DB **37**; 4e DCR **45**; 4e DC **44**; 5e DC **44**; 1er DIM **69**; 15e DIM **66**; 1er DLM **38**, **44**, **45**, **76**; 2e DLM **5**, **38**, **44**, **45**, **47**, **51**, **53**, **57**, **58**, **66**, **67**, **68**, **75**; 3e DLM **9**, **21**, **35**, **38**, **44**, **45**, **47**, **50**, **51**, **53**, **57**, **58**, **62**, **63**, **66**, **68**, **71**, **74**; 4e DLM **44**; 7e DLM **44**
brigades: 5e BLM **38**, **44**; 6e BLM **44**
regiments: 76e RA **37**, **44**, **56**, **66**; 1er Cuirassiers **44**, **59**, **62**, **70**; 2e **8**, **9**, **18**, **20**, **21**, **26**, **35**, **37**, **38**, **44**, **54**, **55**, **60**, **62**, **63**, **66**, **69**; 9e Cuirassiers **37**; 12e Cuirassiers **35**, **44**, **50**, **51**, **54**; 3e RD **45**; 13e RD **38**, **68**; 18e RD **76**; 29e RD **5**, **51**, **75**; 1e RDP **61**; 11e RDP **44**, **45**, **46**, **54**, **59**, **61**, **62**, **63**; 13e RDP **58**
battalions: 35e BCC **69**; 36e BCC **68**

Gamelin, Général Maurice **18**, **19**
Gembloux **9**, **11**, **49**, **51**, **52**, **53**, **55**, **57**, **66**, **67**, **68**, **69**, **71**, **76**, **77**; battle of **72**; Gap **26**, **52**, **53**, **66**, **67**, **68**, **71**, **73**, **76**, **77**
Geneste, Sous-lieutenant **54**, **55**
German Army (Heer) **5**, **6**, **7**, **10**, **12**, **14**, **15**, **16**, **34**, **35**, **36**, **39**, **40**, **73**, **74**
Heereswaffenamt (Army Ordnance Division), the **10**, **11**, **12**, **14**, **15**, **16**
Panzertruppen-Schule **6**, **12**
army groups: Heeresgruppe A **47**, **77**, **78**; B **36**, **47**, **48**, **51**, **68**, **77**, **78**
armies: 6. Armee **51**, **55**, **57**, **70**
corps: XVI. Armeekorps (mot.) **9**, **23**, **41**, **48**, **50**, **59**, **77**, **78**
divisions: 1. PzDiv **15**; 3. PzDiv **15**, **48**, **51**, **57**, **58**, **59**, **62**, **63**, **67**, **69**, **72**, **73**, **78**; 4. PzDiv **9**, **22**, **34**, **36**, **39**, **40**, **41**, **42**, **43**, **44**, **48**, **50**, **51**, **53**, **55**, **57**, **58**, **59**, **60**, **62**, **63**, **67**, **68**, **69**, **71**, **72**, **73**, **74**, **77**, **78**
brigades: PzBrig **5** **36**, **40**, **43**, **63**, **68**; 4. SchtzBrig **40**, **43**, **54**, **69**
regiments: PzRgt **3** **15**; PzRgt **5** **59**; PzRgt **6** **36**, **57**, **59**, **68**, **69**; PzRgt **35** **9**, **13**, **34**, **35**, **36**, **37**, **38**, **40**, **41**, **42**, **43**, **50**, **51**, **53**, **54**, **55**, **56**, **59**, **60**, **62**, **63**, **66**, **67**, **69**, **74**, **78**; PzRgt **36** **11**, **39**, **40**, **42**, **43**, **48**, **51**, **52**, **53**, **60**, **67**; PzJgRgt **656** **63**; SchtzRgt **12** **40**, **56**, **60**, **69**; SchtzRgt **33** **60**; **12** **41**, **42**, **43**, **55**, **56**, **59**, **60**, **69**
battalions: PzJgAbt **39** **63**; **49** **22**, **43**, **60**, **63**
Guderian, Oberstleutnant Heinz **39**, **40**
gunner **11**, **24**, **27**, **29**, **75**

Hannut **9**, **34**, **36**, **37**, **46**, **51**, **53**, **54**, **55**, **56**, **57**, **58**, **61**, **72**, **76**; battle of **60**; Hannut–Merdorp **4**, **9**, **22**, **23**, **48**, **70**, **72**, **78**
Hoepner, General der Kavallerie Erich **23**, **48**, **50**, **51**, **53**, **55**, **57**, **58**, **59**, **66**, **67**, **68**, **69**, **70**, **76**, **77**
Hotchkiss **12**, **18**, **19**, **32**, **38**, **44**, **53**, **54**, **55**, **56**, **57**, **59**, **60**, **62**, **63**, **71**, **72**; H **35** **18**, **44**, **45**; H **39** **18**, **38**, **44**, **45**, **46**, **54**

Jandrain **56**, **59**, **61**, **62**, **63**, **66**
Jandrenouille **56**, **59**, **60**, **61**, **62**, **63**
Jauche **61**, **62**, **63**
Jungenfeld, Hauptmann Ernst Freiherr von **13**, **54**, **55**, **57**, **62**, **63**, **66**, **68**, **74**

Langlois, Général de division **44**, **61**, **63**
Le Bel, Sous-lieutenant Robert **59**, **63**, **78**
loader **11**, **27**, **29**, **31**
Lutz, Generalleutnant Oswald **10**, **11**, **39**, **40**

machine guns: 7.5mm MAC **31** **21**, **25**, **33**; 7.92mm MG **34** **7**, **11**, **13**, **25**, **29**
Maybach **15**, **27**; HL 120 TRM **13**, **16**
Merdorp **56**, **59**, **60**, **61**, **62**, **66**, **69**; Hannut–Merdorp **4**, **9**, **22**, **23**, **48**, **70**, **72**, **78**

Panhard AMD **35** **44**, **50**, **54**
Panzerbefehlswagen **16**, **52**, **55**, **68**, **74**;
Befehlspanzerwagen III **35**; grosser **40**, **73**; kleiner **40**, **73**
Panzerkampfwagen (PzKpfw):
PzKpfw I **7**, **10**, **11**, **12**, **14**, **16**, **34**, **35**, **38**, **39**, **40**, **42**, **48**, **54**, **59**, **73**
PzKpfw II **7**, **12**, **15**, **34**, **35**, **54**, **55**, **59**, **73**
PzKpfw III **4**, **6**, **7**, **8**, **9**, **10**, **11**, **12**, **13**, **14**, **15**, **16**, **17**, **20**, **22**, **23**, **24**, **25**, **26**, **27**, **28**, **29**, **34**, **35**, **40**, **42**, **45**, **46**, **53**, **55**, **56**, **62**, **63**, **66**, **67**, **73**, **74**, **77**, **78**; Ausf A **8**, **12**, **15**, **42**; Ausf E **9**, **15**, **16**, **26**, **42**; Ausf F **6**, **9**, **13**, **15**, **16**, **28**, **29**, **52**, **66**, **77**; Ausf G **16**
PzKpfw IV **5**, **7**, **10**, **11**, **12**, **20**, **34**, **35**, **39**, **40**, **45**, **55**, **59**, **60**, **62**, **73**
PzKpfw 35(t) **18**
periscopes: 4× binocular **31**, **33**; KFF 1 binocular **28**
Prioux, Général René **47**, **51**, **52**, **53**, **57**, **66**, **68**, **76**
radio **30**, **32**, **38**, **52**, **55**, **74**, **75**; equipment **16**, **17**; ER **26** **32**; ER **28** **32**; ER **29** **32**; Fu **2** **28**; operator **25**, **28**, **30**, **31**, **66**
reconnaissance **17**, **44**, **45**, **50**, **51**, **52**
Renault: FT tank **4**, **5**, **7**; R **35** **7**, **17**, **18**, **68**, **69**
Rheinmetall **5**, **11**, **14**
rivers: Dyle **47**, **49**, **52**, **72**; Meuse **54**, **57**, **58**, **61**; Maas (Meuse) **49**, **50**, **51**, **52**, **53**, **57**, **58**, **70**, **77**; Rhine **37**, **49**; Scheldt (Escaut) **49**, **52**

Société d'outillage mécanique et d'usinage d'artillerie (Artillery Tooling and Machinery Company) (Somua) **8**, **17**, **18**, **19**, **20**, **21**, **22**, **23**, **25**, **26**, **27**, **31**, **32**, **35**, **38**, **44**, **45**, **55**, **56**, **57**, **60**, **62**, **63**, **66**, **67**, **71**, **78**
AC **3** prototype **8**, **18**, **19**
S **35** **4**, **5**, **7**, **8**, **17**, **19**, **20**, **21**, **22**, **23**, **24**, **25**, **30**, **31**, **32**, **33**, **35**, **38**, **39**, **45**, **51**, **53**, **62**, **68**, **69**, **70**, **73**, **74**, **75**, **76**
S **40** **20**
SAU **40** **20**
Steuer, Generalmajor **43**, **50**, **51**, **53**, **55**, **59**, **61**, **69**, **77**
Stumpf, Generalmajor **57**, **58**, **69**
suspension **12**, **14**, **18**, **26**, **72**; coil-spring **12**; leaf-spring **12**, **14**, **26**; torsion-bar **14**, **26**

tank/anti-tank guns **5**, **11**, **12**, **14**, **22**, **23**, **34**, **73**;
25mm **12**, **53**, **69**, **74**; 25mm SA **34** **24**; 37mm **7**, **14**, **15**; 37mm SA **18** **24**, **38**, **44**, **56**, **72**; 37mm SA **38** **24**, **38**, **44**, **59**; 3.7cm **5**, **6**, **7**, **11**, **14**, **16**, **17**, **22**, **23**, **46**, **56**, **62**, **66**, **73**; 3.7cm KwK **11**, **13**, **24**, **25**, **29**; 3.7cm PaK **32**, **60**; 45mm **14**; 47mm **17**, **22**, **23**, **25**, **30**, **55**, **56**, **60**, **74**; 47mm SA **35** **21**, **23**, **24**, **30**, **33**; 5cm **16**
tank commander **12**, **27**, **30**, **63**, **75**
telescopic sight **30**, **31**; 4× L.731 **23**, **25**; TZF **5B** **25**× **27**
Thisnes **18**, **55**, **56**, **57**, **59**, **61**
training **6**, **7**, **8**, **12**, **24**, **34**, **35**, **38**, **74**
transmission **14**, **15**, **18**, **32**; Variorex **15**, **16**, **28**
turret **11**, **16**, **17**, **18**, **19**, **20**, **22**, **23**, **25**, **27**, **28**, **29**, **30**, **31**, **33**, **37**, **63**, **66**, **72**, **74**, **75**

Waremmes **52**, **53**, **56**

Zugführerwagen (ZW) **10**, **11**, **40**

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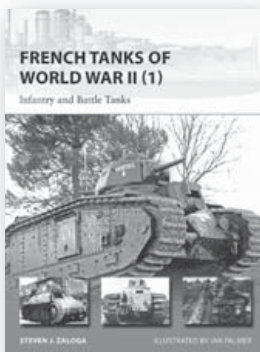
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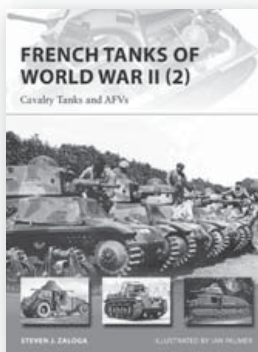
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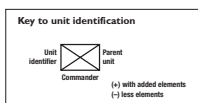
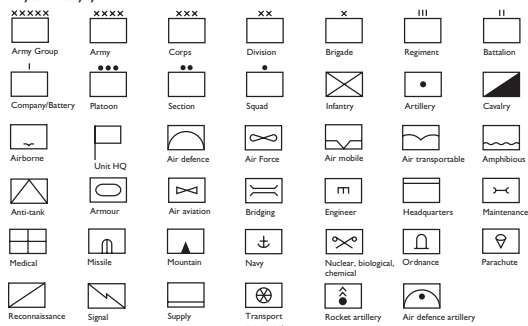
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Key to military symbols



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Glossary

AFV	armoured fighting vehicle
AMC	<i>automitrailleuse de combat</i> (cavalry tank)
AMD	<i>automitrailleuse de découverte</i> (deep-reconnaissance armoured car)
AMR	<i>automitrailleuse de reconnaissance</i> (reconnaissance tank)
AP	armour-piercing
APC	armour-piercing capped
APX	Ateliers de construction de Puteaux (Puteaux State Armament Workshop)
AufklAbt	<i>Aufklärung-Abteilung</i> (reconnaissance battalion)
Ausf	<i>Ausführung</i> (type)
BCC	<i>bataillon des chars de combat</i> (tank battalion)
BLM	<i>brigade légère mécanique</i> (light mechanized brigade)
DB	<i>division blindée</i> (armoured division)
DC	<i>division de cavalerie</i> (cavalry division)
DCR	<i>division cuirassée de réserve</i> (armoured division)
DIM	<i>division d'infanterie motorisée</i> (motorized infantry division)
DLM	<i>division légère mécanique</i> (light mechanized division)
GRDI	<i>groupe de reconnaissance de division d'infanterie</i> (infantry division reconnaissance group)
HE	high explosive
Kfz	<i>Kraftfahrzeug</i> (motor vehicle)
LAC	Library and Archive Canada, Ottawa
MHI	Military History Institute, Army Historical Education Center, Carlisle Barracks, PA
NARA	National Archive and Records Administration, College Park, MD
PzBrig	<i>Panzer-Brigade</i> (tank brigade)
PzDiv	<i>Panzer-Division</i> (armoured division)
PzJgAbt	<i>Panzerjäger-Abteilung</i> (anti-tank battalion)
PzKpfw	<i>Panzerkampfwagen</i> (tank)
PzRgt	<i>Panzer-Regiment</i> (tank regiment)
RA	<i>régiment d'artillerie</i>
RDP	<i>régiment de dragons portés</i> (motorized infantry regiment)
SchtzBrig	<i>Schützen-Brigade</i> (motorized infantry brigade)
SchtzRgt	<i>Schützen-Regiment</i> (motorized infantry regiment)
SdKfz	<i>Sonderkraftfahrzeug</i> (special motor vehicle)
Somua	Société d'outillage mécanique et d'usinage d'artillerie (Artillery Tooling and Machinery Company)

Editor's note

In this book, corps- and battalion-level units are given roman numeral designations, while army-, division-, regiment- and company-level units are given Arabic numeral designations. Metric units of measurement are employed as the Germans and the French both used metric during World War II. For ease of comparison please refer to the following conversion table:

1km	= 0.62 miles
1m	= 1.09yd / 3.28ft
1cm	= 0.39in
1mm	= 0.04in
1kg	= 2.20lb / 35.27oz
1 tonne	= 0.98 long (UK) tons / 1.10 short (US) tons
1 litre	= 0.22 UK gallons / 0.26 US gallons
1kW	= 1.34hp (international)

Title page photograph: The Somua S 35 commander was able to use a hatch on the right rear side of the turret outside the battle-zone, but it was not a practical solution in combat since it left him too exposed. This S 35 was modified by the Wehrmacht with a cut-down cupola with top hatch. (Author)

Ad Maiorem Gloria Deo